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HOSPITAL FACILITIES

CONGRESS has just authorized $75,000,000 to breathe life into the first year's program under the Hospital Survey and Construction Act. The Act itself represents one of the best prescriptions of our time to help meet the health needs of American communities. Anyone as close to community health problems as the pharmacist will recognize that present trends in medical care sharpen, rather than blunt, the demand for better hospital facilities.

This has nothing to do with the quality of service provided by private practitioners of pharmacy and medicine. Yet the physician practices under a handicap today without having at hand the complex diagnostic and treatment facilities of a well-equipped institution. It is also true that parenteral or highly potent medication should often be given either in a hospital or with hospital facilities in reserve. These things lead young physicians to ask: Do I want to practice in a small community without modern hospital facilities? Too many of them now answer "no."

The facts show that 4 out of every 10 counties in the United States have no registered hospitals. In these counties are 15,000,000 people who are not close enough to hospitals for adequate health protection. And 4 out of 10 counties are without the services of a full-time health department.

These deficiencies are being attacked head-on through the Hospital Survey and Construction Act passed last year. Any such deficiencies in a pharmacist's community are of direct concern to him. We have an opportunity here to demonstrate community leadership that will reflect the pharmacist's broad interests in medical care and take advantage of his intimate daily contact with the public's needs and with other health workers.

Before a nickel of public funds can be spent on local construction, under the hospital program, each state must determine the relative needs of various areas within the state. This offers a welcome departure from our present hospital pattern, which developed without sufficient systematic planning and attention to strategic locations and sound operation.

About half the states are now completing their surveys. These are conducted by a designated agency working with an advisory committee of representatives from both producers and consumers of hospital services. It may be expected that pharmacy in the various states, as one of the health professions, would contribute at this level through representation on the advisory group.

But it is at the community level that pharmacists can contribute most. Each community must see that it gets the full benefit of the hospital act. Planning at the community level may well center in the community health council, where pharmacists have played an important role in many areas. Where there is no council, present interest in developing hospital facilities offers one of many reasons for establishing a group representative of the health professions and of the lay community.

Either through an established council or a representative committee pharmacists should promptly and actively join with members of the other health professions in evaluating any deficits in hospital and public health facilities. Contact should be established with the state agency preparing the survey report on hospitals in your state. This agency must publish its findings and hold public hearings to assure that the needs of each area have been properly recognized, before asking for Federal approval and funds.

Every dollar expended by the Federal government, for either survey or construction costs, must be matched by two dollars of state or local funds. Thus it will be up to each community to prove it can (1) pay two-thirds of the cost of building its hospital or health center and (2) operate and maintain the facilities when completed. Here again pharmacists can render a public service in organizing community support and intelligent planning.

There must be sensible and realistic planning not only among community groups but among communities in an area to make certain that facilities will be used efficiently—including adequate pharmaceutical service—and that they can be effectively maintained. Since a prime objective of the hospital act is to provide hospitals and health centers where there are fewer people and less money, the demands posed by operating and maintaining facilities, once they are built, could well be the subject of state legislation.

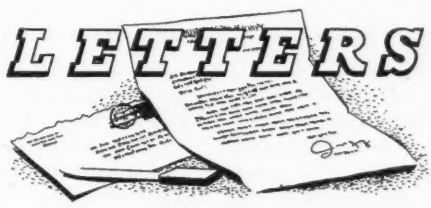
Even if the program is not extended beyond the $375,000,000 five-year program approved by Congress to supplement state and community funds for construction, it represents a big step toward expanding health services in a manner completely acceptable to the health professions as well as the public.

GLYCERYL MONOSTEARATE—SPECIFYING GRADES

Sirs:

In the February issue of the *Practical Pharmacy Edition*, page 65, there appeared an article on an emulsion of methyl salicylate. The way the formula given is written one ingredient, glyceryl monostearate, might be questioned.

It either was not known, or was overlooked, that glyceryl monostearate as such is not an emulsifier. It aids emulsification in the same way as the various solid alcohols but requires additional emulsifier to produce an emulsion. . . .



Actually there are two grades of glyceryl monostearate available. One is pure glyceryl monostearate which is not self-emulsifying; second is the self-emulsifying grade. Of the latter type there are a number of brands available with different emulsifiers to be used for a variety of purposes. A self-emulsifying grade must be used in the formula appearing in the February issue to obtain a satisfactory product. In recent papers appearing in a number of journals the term "glyceryl monostearate" has been used quite loosely with no indication as to just what item actually was used. The purpose of this letter is to call attention to the existence of the condition and suggest greater detail in the presentation of formulas.

Norwich, New York — PAUL C. WIESEMAN

PHARMACY IN PALESTINE

Sirs:

. . . I am reading both editions of the JOURNAL with interest and always looking for the postman to bring me the next number. Although there is quite a formidable pharmaceutical industry in Palestine, which succeeded in expanding very much during the war, it still lacks the large sums necessary for scientific research and—with certain exceptions—mostly imitates foreign preparations. For newer preparations and their possibilities in compounding I have to read and depend on the JOURNAL.

A big step forward is the plan for erection of a section for pharmacy at the Hebrew University in Jerusalem, which will also be the first step toward establishing a medical school. Until now students had to go abroad, which was very expensive and difficult in view of the restrictions for sending money outside the sterling area.

In Palestine a pharmacy is still a pharmacy, for besides medicines only accessories and cosmetics are sold. Anyone may open or buy a pharmacy if he employs a licensed pharmacist. There are almost no restrictions on the number of pharmacies, and it is possible to find two pharmacies only separated by the breadth of the street.

The percentage of physicians and pharmacists in the Jewish sector is very high owing to the large number of learned and qualified men who have been able to escape from Europe.

There are more difficulties for the pharmacist than elsewhere: He has to know the names and synonyms of the proprietary medicines of Palestine, England, U.S.A., Germany, France, Italy, etc., only to name a few. He has to know at least three languages, i.e., English, Hebrew or Arabic, and German or French, but most of the Jewish pharmacists average four to eight languages. In our pharmacy we have to know between the two of us: English, Hebrew, Arabic, French, German, Yiddish, Polish and Russian, which also includes knowledge of three different types of script—circumstances hardly encountered elsewhere! . . .

There is a "Pharmacy Owner's Association," which edits a monthly paper in Hebrew.

It is the custom to employ for a few pounds per month a girl who will become within three years of working in a pharmacy eligible for an "assistant's examination," and the number of such assistants grows steadily. On the other hand there are many qualified holders of foreign diplomas who are unable to obtain a license in Palestine owing to the differences in study. Thus, a qualified man who has practiced pharmacy for forty years in Germany is "inferior" to a girl of nineteeen, who need not have finished intermediate school. Moreover, salaries for licensed pharmacists are very low.

There are large numbers of "illegal" residents (tens of thousands!) in the possession of Palestinian identity cards (an inland passport) and listed with the government. Among them are many pharmacists, holders of European qualifications who are unable to get a license on account of their "illegality." I don't like to speak about the different difficulties arising out of the present political situation, but there are many that involve the pharmacist. . . .

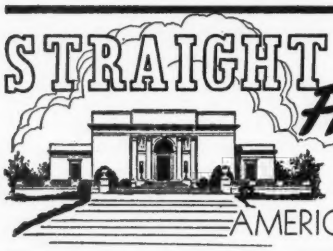
Haifa, Palestine — RUBEN G. HAUSHALTER

COMMENDATION

Sirs:

Along with my application for renewal of membership, I thought that I would send a note letting you know just how much I have appreciated and shall continue to enjoy the constant and all out force and effort that the A. PH. A. is putting forth to make pharmacy the high standing profession that it is. Please extend my congratulations and praise to the editors and writers for the JOURNALS. I recommend that all my students get the JOURNALS and faithfully read them, as I know of no other way that they can keep abreast of the latest and the best of the scientific news.

Big Rapids, Mich. — RICHARD H. COWARD



STRAIGHT FROM HEADQUARTERS

by ROBERT P. FISCHELIS, Secretary
AMERICAN PHARMACEUTICAL ASSOCIATION

EVENTS of the past year point directly to the growing importance of the AMERICAN PHARMACEUTICAL ASSOCIATION as the spokesman for pharmacy in matters dealing with the professional activities of pharmacists. This involves contacts with committees of Congress, the executive departments of the government, and conferences with representatives of other professional societies, especially in the fields of medicine, medical science, and education. The growing importance of the United States of America as a leading power in international affairs has resulted in a considerable increase in the number of inquiries directed to the ASSOCIATION from foreign organizations dealing with public health and medical and pharmaceutical problems.

It is therefore of increasing importance that the ASSOCIATION be in a position to speak authoritatively, and this requires considerable foresight on the part of those who are chosen to effectuate the policies approved by the ASSOCIATION. It also places upon the annual convention the responsibility of laying down, for the benefit of its officers and committees, the basic principles which are to guide the stands to be taken on controversial matters.

It is not advisable for an association to take an inflexible position on a matter which is subject to adjustment in keeping with national and local trends. The association's position should always be firm but it should allow for unforeseen contingencies which might cause a change in attitude over a relatively short period of time.

It has been pointed out on numerous occasions that the organizational structure of the AMERICAN PHARMACEUTICAL ASSOCIATION is such that all subdivisions of pharmacy may have a voice in its deliberations and may help to guide the formation of its policies.

As the national Pharmaceutical Survey proceeds with its investigations, it becomes perfectly obvious to those who are conducting it that pharmacy is not a single task nor confined to one-track objectives. It deals with a heterogeneous mass of activities resulting from the many cross currents which inundate the body pharmaceutic. The production and distribution of drugs and medicines is such a complex activity that no one can outline a direct path from its beginning to its end.

This is a well-known phenomenon to those who have spent their lives in any one of the phases of pharmaceutical activity. It is sometimes not immediately clear to those who begin a survey, but it becomes one of the earliest findings of any kind of a survey of pharmacy. It is not surprising that one wonders whether there can exist any single source of authority for the expression of the hopes, desires and aspirations of those who deal with the daily problems of the complex mechanism which is called pharmacy.

The need for concerted action and unified expression has been obvious to those who make up the profession of pharmacy and the drug industry for years. Actually, they have done pretty well in working out the means of expressing the wishes and the attitudes of the respective groups within the profession and industry.

Who Speaks for the Profession?

The manufacturers have their trade organizations which pass resolutions or adopt recommendations setting forth their views. The wholesale druggists also have trade associations which are engaged in representing their ideas. The colleges of pharmacy give expression to opinions on educational matters and unite to enforce minimum standards through a national association of their own. The boards of pharmacy of the 48 states and the District of Columbia and the territories—in addition to the police power which they exercise in the respective states—meet at least once a year, as a group, to consolidate their thinking and project methods of action. The National Association of Retail Druggists continually looks after the economic phases of retail pharmacy, and we now have the Society of Hospital Pharmacists and the College of Apothecaries acting as spokesmen respectively for those engaged in institu-

tional pharmacy and in exclusive prescription practice.

But who speaks for the profession as a whole? More and more the answer to this question is: The AMERICAN PHARMACEUTICAL ASSOCIATION. In the House of Delegates all of the various national and state pharmaceutical associations are represented by delegates. Pharmacy therefore has a forum for a discussion of all of its problems from the viewpoint of its professional functions.

Another year has rolled around and within two months the AMERICAN PHARMACEUTICAL ASSOCIATION will meet in annual convention at Milwaukee. If American pharmacy does not take advantage of this meeting to air its views on what should be the objectives of the profession for the immediate future, it will be no fault of the AMERICAN PHARMACEUTICAL ASSOCIATION which provides the annual forum and which is gradually acquiring the machinery with which to implement the wishes of those who constitute this profession.

In the Wake of War, Many Problems

The past year has been a very active period in the development of national policies. We are endeavoring to solve the abnormal problems which follow in the wake of every upheaval, such as World War II.

A few years ago the ASSOCIATION considered the problem of how we could get along with 14,000 registered pharmacists withdrawn from civil life for military duty. Today the problem is how to absorb into the body pharmaceutic all of the pharmacists who have returned from the war and the additional thousands who were not affiliated with pharmacy at the time they became soldiers but who are now taking advantage of the veterans' educational program to become members of the profession.

Just as we approached the first of these problems with understandable fear and trepidation, so, many are today approaching the second problem with considerable skepticism as to the effect of a great influx of new pharmacists upon the future of those now engaged in the practice of the profession and upon the future of pharmacy as a whole.

From this general and fundamental problem there stems a number of subsidiary problems: the question of the adequacy of our educational program, the problem of maintenance of our colleges on a satisfactory level, and locating new fields of endeavor for those who will graduate from the schools of pharmacy in the coming years.

Interprofessional relations take on a greater importance as the need for more intelligent division of labor in scientific and professional endeavors becomes necessary. In the armed services it is now recognized that medical skill and experience have been wasted by assigning physicians to tasks in the Army and Navy which could be performed as well or better by highly trained scientists who have specialized in pharmacy, bacteriology, the various branches of chemistry and other sciences and arts. It took a second world war to drive these lessons home.

As the auxiliary professions are taking over non-medical duties once performed by physicians, the need for close coordination of the auxiliary services with the primary service of medical care to the soldier and sailor becomes apparent. Exactly the same is true in the field of medical care as applied to the general public. It is therefore timely to give thought and serious attention to ways and means of building up sound procedures for the coordination of professional activities.

All of this can and should be done at the A. PH. A. convention in Milwaukee in August.

Among other important problems before the profession which require the attention of the House of Delegates and on which guidance in the form of policy declarations are needed are the following:

1. National and state legislation seeking to further the general program of uniform laws dealing with commerce in drugs; control of habit-forming drugs such as barbiturates; control of distribution of drugs through professional channels, and safeguarding the compounding and dispensing of drugs by prescribing adequate qualifications for professional personnel.

2. Planning for the improvement of teaching and testing pharmacists with reference to general practice and the development of specialists.

3. Planning for adequate and properly compensated pharmaceutical service in connection with expanding programs for medical care for all groups within the population of the United States.

4. Interesting recent graduates in career service in the armed forces and various other branches of the government.

5. Establishing criteria and standards for the highest quality of services in the compounding of prescriptions and the manufacture of pharmaceuticals.

6. Improving the social and economic status of employed pharmacists with due regard for their standing as professional men and women.

ARE IODINE PREPARATIONS STABLE?

by GEORGE D. BEAL, KENNETH L. WATERS, and PAUL BLOCK, JR.

ONE hundred and seventeen years ago Tincture of Iodine was admitted to the Pharmacopœia. Ten years later, in 1840, the second revision of this official compendium recognized two additional iodine preparations: Compound Tincture of Iodine contained half an ounce of iodine and one ounce of potassium iodide in a pint of alcohol; and a Compound Solution of Iodine, perhaps better known as Lugol's Solution, contained six drachms of iodine and one and one-half ounces of potassium iodide in a pint of water.

SUBLIMATION of iodine (above) provides a convenient means of purification. The violet vapor condenses directly into masses of shining purplish-black crystals, as shown in this photograph taken at the J. T. Baker Chemical Co. Iodine (thus named from a Greek word meaning "violet colored") has retained its place as a useful official drug for more than a century.

This Compound Solution has remained virtually unchanged during the past century and is in the Thirteenth Revision of the Pharmacopœia as Strong Iodine Solution. The Compound Tincture after making its appearance in the 1840 Pharmacopœia was deleted and was not included in the U. S. P. III.

It was not until 1905 that potassium iodide was again added to the tincture; at this time the Eighth Revision required the addition of 5% potassium iodide. Later U. S. P. IX included 5% water in the formula, the potassium iodide being dissolved in the water to facilitate solution of the iodine prior to addition of the alcohol. This preparation remained in the Pharmacopœia until the Thirteenth Revision and is now official in the National Formulary VIII as Strong Iodine Tincture.

A 2% tincture was added to U. S. P. XI as an antiseptic solution for extemporaneous skin sterilization and for use as a first-aid dressing for cuts and wounds in the home. This milder

* See THIS JOURNAL, *Scientific Edition*, **36**, 203(1947) for experimental detail and reference.

tincture was introduced after extensive investigation had shown its general usefulness and bactericidal efficiency. The 2% tincture does not appear to destroy tissues, thus promoting more rapid healing than does the 7% tincture. In addition, the milder tincture is prepared with dilute alcohol, rendering it considerably less irritating when applied to open wounds. The Pharmacopœial Committee on Scope recognized these advantages. It voted to delete the 7% tincture and to change the name of Mild Tincture of Iodine U. S. P. XII to Iodine Tincture U. S. P. XIII. Realizing the usefulness and popularity of the stronger tincture the National Formulary adopted the 7% tincture.

In the early thirties Karns, Cretcher, and Beal demonstrated that protein absorbs iodine more readily from an aqueous solution than from an alcoholic solution of equal strength. Further studies have indicated that the dosage deposited depends not only on the solvent, but also on the iodide to iodine ratio. It has been found that by adjusting this ratio a solution could be obtained which would deposit an adequate dosage yet contain a smaller amount of iodine. A 2% aqueous solution has proved satisfactory in this respect. In such a solution the chemical and osmotic contributions to pain are considerably lessened, thereby giving a more physiologically desirable preparation.

Other investigators showed that the water solution of iodine was superior to the alcoholic solution in rate of penetration and that it was just as efficient as a bactericide. After extensive clinical tests Secor declared that the aqueous solution was an excellent antiseptic for general hospital use. As a result of these studies, Solution of Iodine (2%) was made official in U. S. P. XII. However, this product did not gain popular acceptance (possibly because of the low rate of evaporation of the aqueous solvent) and was deleted from the U. S. P. XIII. It is official under the name Iodine Solution in the National Formulary VIII.

For at least one hundred years inquisitive pharmacists, physicians and laymen have asked the question: Do iodine tinctures become stronger or weaker with age, or are they stable preparations? During this period of time investigators have studied the stability of the tinctures and have reached various conclusions.

Stability Has Been Questioned

Some reported that the preparations are stable, others wrote that they are unstable and attributed the instability variously to the effect of light, the temperature of storage, the impurities in the alcohol, the type of glass and to a reaction with the closure. In 1916 Gianturco stated in the *United States Naval Bulletin* that six months was the maximum safe keeping period for iodine preparations intended for chirurgical purposes. In 1928 Bohrish reported that iodine preparations were stable but kept best in completely filled containers of brown glass. With such controversial reports in the literature one justly wonders if the present U. S. P. and N. F. preparations, stabilized as they are with sodium or potassium iodide, will maintain their required strength.

If one were to ask pharmacists and physicians to venture a guess as to what happened to Tincture of Iodine when aged for several years, he would probably find that opinions were about equally divided among them, some thinking that iodine escapes, leaving a weaker solution, and others believing that alcohol escapes to leave a stronger solution.

To answer the question without guessing, we collected 13 samples of Strong Iodine Tincture from individuals who had the preparation in their family medicine cabinets probably for as long as five years. These samples had no known history other than that they were purchased as Tincture of Iodine U. S. P. XI or XII.

Since no previous analysis was available, it can only be assumed that the samples were originally within the limits set by the Pharmacopœia Some of the closures were faulty and some labels

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- ***Tincture of Iodine* (7%) *U.S.P. XII becomes Strong Iodine Tincture N.F. VIII***
- ***Mild Tincture of Iodine* (2%) *U.S.P. XII becomes Iodine Tincture U.S.P. XIII***
- ***Solution of Iodine* (2%) *U.S.P. XII becomes Iodine Solution N. F. VIII***
- ***Still in the U.S.P. XIII, Strong Iodine Solution* (5%)**

---

showed evidence of considerable age. The result of these assays are shown in Table I.

TABLE I—ASSAYS OF OLD TINCTURES FROM FAMILY MEDICINE CABINETS

No.	% Iodine	% KI
1*	14.5	16.5
2	7.4	5.6
3	9.3	9.7
4	7.1	5.2
5	7.3	5.7
6	7.1	5.6
7	10.7	10.8
8	8.1	7.4
9	8.2	7.7
10	6.9	5.4
11*	16.3	14.8
12	7.7	5.9
13	8.6	7.2

* Closures in bad condition.

It may be observed that 8 of the 13 samples exceed the maximum limit of 7.5% iodine, whereas 11 of the 13 samples exceed the maximum limit of 5.5% potassium iodide. No significance can be attached to these figures other than that of actual analysis of household-used Tincture of Iodine. The samples which were found to be extremely high, e.g., Nos. 1, 7 and 11, were obviously very old and showed visible evidence of evaporation. Improperly stored samples such as these have probably given rise to the belief that aged Iodine Tinctures are strong and harmful.

If the samples reported above are considered to be typical of Strong Iodine Tincture after it has been in use for several years, an investigation of the stability of the official iodine preparations would seem in order. We have pursued such an investigation. Two liters each of Strong Iodine Tincture (7%), Iodine Tincture (2%), Iodine Solution (2%), and Strong Iodine Solution (5%) were made in accordance with the official directions. The preparations were then placed in clear, 2-liter, glass-stoppered bottles and allowed to age for a period of three months in the dark. After this they were again assayed and transferred to clear, amber, and blue glass-stoppered bottles; the clear and amber bottles had a capacity of 16 ounces and the blue glass bottles had a capacity of 8 ounces.

For two and one-half years these preparations were assayed periodically. A summary of these data is given in Table II. During the test period the bottles were moved from place to place in the laboratory and at no time were they protected from light. For two separate three-month periods they were placed on a window sill where they were exposed to direct sunlight. One of these periods was during the summer months and a thermometer placed near the bottles occasionally reached 40° C. In one instance pressure developed to such an extent that apparently the heavy glass stopper was forced upward to relieve the pressure as evidenced by small spots of potassium iodide which remained on the shoulder of the bottle.

The results reported in Table II lead one to believe that the official preparations when stored in tight containers are stable preparations. Only one bottle, namely, that of Iodine Solution in an amber bottle, showed appreciable change. But

TABLE II—STABILITY OF OFFICIAL IODINE PREPARATIONS

	Type Bottle	Percent Iodine Freshly Prepared	Percent Iodine 30-Mo. Storage	Official Limits	Final pH
Iodine Tincture U. S. P. XIII (2%) *	Clear	1.95	1.99	1.8	3.8
	Amber	..	2.00	to	3.8
	Blue	..	1.99	2.2	3.9
Strong Iodine Tincture N. F. VIII (7%)	Clear	6.94	7.04	6.8	4.7
	Amber	..	7.06	to	4.7
	Blue	..	6.91	7.5	5.4
Iodine Solution N. F. VIII (2%)	Clear	1.95	1.90	1.8	7.5
	Amber	..	1.75	to	7.0
	Blue	..	1.82	2.2	7.5
Strong Iodine Solution U. S. P. XIII (5%)	Clear	4.95	4.98	4.5 to	7.5
	Amber	..	4.99	5.5	7.5

it was apparent that the stopper of this bottle did not fit well, thus permitting evaporation through the glass ground stopper. The final *p*H values of the preparations indicate that no appreciable acidity developed during the storage period.

Two Per Cent Tincture Proves Stable

Since the 2% iodine tincture received official status in U. S. P. XI it has become increasingly popular. Its merits and its advantages over the 7% tincture have been recognized by the Committee on Scope of the Pharmacopœia and they have voted to delete the 7% tincture and make the 2% tincture the official Iodine Tincture of U. S. P. XIII. Now that the new revision is official, pharmacists will be dispensing the 2% tincture whenever "Tincture of Iodine" is requested.

Logical reasoning would lead one to believe that the 2% tincture is at least as stable as the 7% tincture. Our two and one-half year storage experiments verify this reasoning. However, some pharmacists have claimed that the 2% tincture is less stable than the 7% tincture, and accordingly a series of experiments have been performed to determine whether the mild tincture is stable under conditions of use.

Four liters of Mild Tincture of Iodine U. S. P. XII were prepared and placed in 2-liter, clear, glass-stoppered stock bottles. One of the stock bottles was stored in the dark for one year and the other was used to fill 2-ounce, clear, glass-stoppered bottles which were placed in first-aid cabinets and subjected to continued use for one year. The only attention given the mild tinctures during the year was to remove them from the cabinets before the bottles were entirely empty and hold them out of service for the remainder of the year. This was necessary in the case of two bottles, which contained only 5 to 10 cc. when removed. Table III summarizes the results of this study.

TABLE III—TWO PER CENT IODINE TINCTURE IN FIRST-AID CABINETS

	% Iodine	% NaI	*p*H
Freshly prepared	2.00	2.20	6.6
Stock sol. after 1 yr.	1.99	2.20	4.0
Bottle 1 after 1 yr.	2.14	2.37	3.9
Bottle 2 " 1 "	2.06	2.29	4.0
Bottle 3 " 1 "	2.01	2.26	3.9
Bottle 4 " 1 "	2.06	2.30	4.0
Bottle 5 " 1 "	2.01	2.26	4.0

One must conclude that a 2% tincture of iodine is relatively stable under conditions of use. There is a slight increase in both iodide and iodine content. This is probably due to evaporation of the solvent. The *p*H of the solution shows that no appreciable acidity is developed. Although the freshly prepared solution is given as *p*H 6.6, it is normal for such solutions to drop to *p*H 5 within twenty-four hours after preparation.

It Is Concluded That—

The official iodine preparations are stable when properly stored in tight containers with closures resistant to iodine, as required by the official compendia.

The 7% tincture in the family medicine cabinet may contain excessive amounts of iodine if its closure is not resistant to iodine or permits evaporation.

The 2% tincture is stable under actual conditions of use if closures are resistant to iodine.

Light appears to have little effect on the stability of iodine tincture and solutions.

NEWLY ISOLATED HORMONE RECEIVES FIRST HUMAN TRIAL

Purified adrenocorticotrophic hormone has been administered to a human subject for the first time, with successful results, in a cooperative experiment reported from the University of California.

A deficiency of this hormone—which is produced by the pituitary gland to stimulate the adrenal glands—causes general disruption of body metabolism with debility and decreased utilization of protein.

Dr. H. L. Mason of the Mayo Clinic and Dr. C. H. Li of the University's Institute of Experimental Biology reported that the purified hormone produced a significant stimulation to the adrenals which exactly matched the amount of hormone administered. Experiments are now being extended to patients suffering from adrenal deficiency.

Dr. Li prepared the hormone used from the pituitaries of 15,000 sheep, and it continues to be available only in minute amounts for limited research.

FROM FEDERATED SOCIETIES . . .

ADVANCES IN MEDICAL BIOLOGY

EXPERIMENTAL MEDICINE AND BIOLOGY YIELD NEW DATA TO BE REFLECTED IN PHARMACEUTICAL PRACTICE OF TOMORROW

AMONG the hundreds of research papers presented each year at the meeting of the Federation of American Societies for Experimental Biology are experimental results leading to new or improved drug therapy of the future. From the reports presented at the 1947 meeting, held in May, the JOURNAL summarizes below a portion of those having special interest to pharmacists.

Organizations which constitute the Federation are the American Physiological Society, American Society of Biological Chemists, American Society for Pharmacology and Experimental Therapeutics, American Society for Experimental Pathology, American Institute of Nutrition and American Association of Immunologists. Many of the papers presented to these groups represent progress reports on research for which practical application has not been established; others reflect findings of more immediate application in medicine.

TRIDIONE-DIPHENYLHYDANTOIN THERAPY

Since tridione and diphenylhydantoin show complementary anti-convulsant actions experimentally, Dr. W. D. Belnap and his associates at the University of Utah School of Medicine reasoned that these drugs might show useful clinical synergism in grand mal. In testing this assumption on seven consecutive patients with frequent seizures, the clinicians found that there was prompt and complete clinical remission in six patients, in two of whom previous phenobarbital-diphenylhydantoin treatment had proved ineffective. In the seventh patient seizures disappeared upon addition of phenobarbital. No hematological or visual disturbances were observed.

It was concluded that tridione-diphenylhydantoin combination therapy deserves more extensive clinical trial, in place of the conventional phenobarbital diphenylhydantoin therapy, in young patients with grand mal associated with interseizure slow-wave EEG dysrhythmia.

STARCH AS SURGICAL DUSTING POWDER

Criticism of talc as a surgical dusting powder due to rather frequent foreign body reactions has led to testing of a number of other substances which might offer advantages. Drs. Shannon C. Allen and Floyd DeEds of the U. S. Department of Agriculture's Bureau of Agricultural and Industrial Chemistry reported on experiments with several starch powders as a possible substitute for talc. These were compared for foreign body reactions with talc, potassium bitartrate and potassium acid saccharate.

The latter was wholly unsuitable as a powdering agent but the starch compared favorably with talc and bitartrate and could be autoclaved successfully. All but one of five different starches were completely absorbed within forty-eight hours of intraperitoneal injection into rats. After initial inflammatory reaction three of these left the peritoneal cavity in completely normal condition even after ten weeks. The two other starches which had been formaldehyde-treated caused severe foreign body reactions.

Evidence indicates that starch can be used successfully as a surgical dusting powder but that its safety is determined by the type of processing it has undergone.

CARONAMIDE TO DELAY PENICILLIN EXCRETION

In a further report on the use of caronamide (4′-carboxyphenylmethane-sulfonanilide) Dr. Karl H. Beyer and his associates at Sharp and Dohme reported that this substance completely and reversibly inhibits the tubular excretion of the various penicillins without inhibiting the renal transport mechanisms for glucose, amino acids, urea or sulfonamide reabsorption, glomerular filtration or ammonia formation. Caronamide was considered effective when administered orally or parenterally and when penicillin was administered by the same or a different route.

PIGEONS VS. CATS FOR DIGITALIS ASSAY

The perennial discussion of the most satisfactory method of assaying digitalis preparations

was renewed in a report by Drs. H. A. Braun and L. M. Lusky of the Food and Drug Administration. Since the frog method was replaced by the cat method the latter has been found generally more satisfactory, but the cost of cats has become a considerable item in manufacture of digitalis products. Investigation of the intravenous pigeon method indicates that comparable results can be obtained at a considerable saving in cost. Potencies determined by the two methods were reported to agree within ±10%.

A NEW ANTIHISTAMINIC COMPOUND

An early report on AH-42, a new antihistaminic agent under trial at Abbott Laboratories, was presented by Dr. L. W. Roth and his associates. Chemically the drug is N(α-pyridyl)-N(α-thenyl) -N′, N′-dimethylethylenediamine hydrochloride. Pharmacologic properties and acute toxicity were described, and chronic toxicity tests are in progress. Results have indicated a favorable therapeutic index.

RELATIVE IMPORTANCE OF DIGITALIS AND DIURETICS

In patients with chronic advanced heart failure who require mercurial diuretics, the mercurial is of greater importance in therapy than digitalis; digitalis may continue to serve a useful purpose in cases of auricular fibrillation which is not as apparent in cases with normal rhythm. This conclusion was reached from a study of 47 cardiac patients by pharmacologists Walter Modell, Morris Pearlmutter and Donald A. Clarke. Mr. Clarke is also chief pharmacist at New York Hospital.

In 78% of the patients continuation of the mercurial in the absence of digitalis for an eight-week period did not disturb the control of heart failure, while in the remaining patients there was a marked progression of failure. There was auricular fibrillation in 90% in the latter group and only 20% in the former.

Although this relative therapeutic benefit of the two agents is of considerable interest, the pharmacologists warned that it had not been established that digitalis may be dispensed with entirely in any case of advanced heart failure.

ISONIPECAINE-AMPHETAMINE SYNERGISM?

Since potentiation of morphine analgesia by amphetamine has been reported, pain thresholds were determined by three methods on eight medical students using a combination of amphetamine and isonipecaine (Demerol). Results reported by Drs. Mark Nickerson and Louis S. Goodman, University of Utah School of Medicine, showed that the pain thresholds of the combination lay midway between that of the individual agents when determined by the Hardy-Wolff-Goodell and tooth stimulation techniques. But by the ice-water test (development of deep pain) there appeared to be a marked potentiation of analgesic effect by use of the combined drugs. The experimenters conclude that the apparent significantly greater effectiveness of amphetamine both alone and in combination on deep pain, as compared with superficial pain, may be related to a greater subjective factor in the interpretation of deep pain.

BAL TESTED AS GOLD SALT ANTIDOTE

The value of BAL (2,3-dithiopropanol) as an antidote for mercuric and arsenic salts has been well established. Studies reported from the George Washington University School of Medicine indicate that similar protection may be afforded by BAL against the toxicity of gold salts.

It was found that 60 mg. per Kg. of gold sodium thiosulfate by single intraperitoneal injection killed all mice. When this dosage was accompanied by daily doses of 10 mg. per Kg. of BAL for eight doses half the mice survived. This protective action was also demonstrated in groups of mice receiving a lower dosage of gold salts. Smaller, more frequent doses of BAL are now being tried in an effort to increase the protective action.

PURIFIED INFLUENZA VIRUS

Occasional untoward reactions due to sensitization to chick embryo proteins in influenza vaccines occur. This has stimulated efforts to achieve a higher degree of purity in influenza virus preparations. Dr. Herald R Cox and his associates at Lederle Laboratories reported that a methyl alcohol precipitation of proteins could be used successfully

to concentrate and partially purify the PR8, Weiss and Lee strains of influenza virus, grown in chick embryos, making them relatively free from inactive non-viral protein. Combined with the Sharples centrifuge method, which is unsuitable alone for large-scale production, the alcohol precipitation procedure is said to effect great savings in man and machine hours.

DOES AMIDONE LEAD TO ADDICTION?

Does amidone, the new synthetic analgesic, lead to drug-addiction? Scientists reporting on use of the analgesic at the Federated Societies meeting differed in their opinions. Some said yes; some said no.

Drs. Anton C. Kirchhof and Dr. Norman A. David of the University of Oregon Medical School reported to the pharmacology section that in their experiments with the drug they had not noted any indications of habit formation or addiction.

Five investigators with the United States Public Health Service, however, declared that they have found amidone, known also as "10820" and dolophine, similar to morphine and other opiate drugs in its ability to produce addiction in animals and man. In spite of the fact that amidone has no chemical relationship to morphine, its actions are similar, they said, and they recommended control of the manufacture and use of the drug to prevent a serious public health problem.

At the Public Health Service hospital in Lexington, Ky., the synthetic was administered to dogs over periods of one to two months, and to men for one to six months. When they stopped receiving the drug, dogs developed illness typical of that usually seen following withdrawal of morphine. The men, former morphine addicts who volunteered as subjects, and especially those who received the drug for six months, developed a mild, but definite, withdrawal illness when administration of amidone was stopped.

Dr. Elizabeth B. Troxil, department of pharmacology, University of Minnesota, told the session that amidone had been administered to 300 patients, 85% of whom obtained good or excellent relief from pain, with results better than those given by morphine. The patients were sufferers from surgery pain, fracture discomfort, arthritis, neuritis, heart disease, and incurable diseases such as cancer. Dr. Troxil and her associates believe that amidone is superior to morphine because it does not produce as much drowsiness, dizziness and nausea. This opinion is shared by Drs. Kirchhof and David.

Amidone, or 4-4-diphenyl-6-dimethylamino-heptanone-3, was synthesized in Germany by chemists of the I. G. Farbenindustrie. Information about the drug first was obtained in 1945 by a Department of State intelligence team which investigated the German pharmaceutical industry after the invasion of the country by American troops.

BIOCHEMICAL STUDIES ON VIRUS MUTATIONS

Biological effects of virus mutation have been recognized for many years but only recently has it become possible to attempt a correlation of this knowledge with the fundamental chemistry of the viruses themselves. The first efforts in this direction, reported by Drs. C. A. Knight and W. M. Stanley in 1941, took the form of chemical analyses on highly purified preparations of some strains of tobacco mosaic virus. This work has now been greatly expanded, as described recently by Knight at the 111th meeting of the American Chemical Society. The results show that various strains of tobacco mosaic virus differ significantly in their contents of certain amino acids, of which virus particles are composed.

Among the many interesting points revealed by these studies was the discovery that a mild strain of the virus differs chemically from a certain killing strain in a changed content of only two amino acids. These and other findings demonstrated for the first time the nature of the chemical changes which accompany mutation of a virus. Since genes possess many properties in common with viruses, it is possible that some gene mutations may result from changes similar to those found among strains of tobacco mosaic virus.

The paper presented at the Federation meetings by Dr. C. A. Knight of the Rockefeller Institute describes the application of these same methods to the virus of epidemic influenza. Here it was found that representatives of the two prominent but immunologically unrelated types of influenza virus also differ in their chemical compositions. While the two strains of influenza virus examined were found to contain essentially the same amounts of 12 of the 17 amino acids for which analyses were made, they differed strikingly in their contents of the other five. It is believed that these differences can account for the lack of immunological relationship between them and for some of the other differences in biological properties.

The immediate importance of findings of this type is that they presumably provide a chemical explanation for the different biological properties of virus strains and lead to a better understand-

ing of these and other agents possessing biological activity. Equally significant is the stimulus which the findings provide for continued research.

For example, since mutation of a virus to form a new strain simply represents a discontinuous alteration of the usual mode of multiplication, it is hoped that studies on the chemical composition of virus strains will furnish clues to the mechanism of virus reproduction itself The phenomenon of virus multiplication is a vital one which concerns not only those who are interested in developing adequate methods for the control of virus diseases but also many others in the fields of biology and medicine. As Dr. Stanley and others have suggested, the virus, though stripped of many of the complexities of living matter, nevertheless possesses some of life's fundamental attributes and hence may provide a key to the secret of life itself.

DRUGS TO DELAY ONSET OF IRREVERSIBLE SHOCK

Extensive hemorrhage, if not treated promptly, may result in irreversible shock. Prompt transfusion of blood or plasma shortly after hemorrhage is arrested will, in most cases, save the life of an individual otherwise certain to die in hemorrhagic shock. These transfusions are ineffective if given after the irreversible shock condition sets in.

Drs. H. C. Wiggers and R. C. Ingraham of the University of Illinois have studied various means of treatment which will render harmless the inevitable delay which often intervenes between the actual loss of blood and the onset of transfusion measures. Two phases of the study conducted during the past year, made possible by financial aid from the U. S. Public Health Service and the Graduate Research Board of the University of Illinois, show promise of practical value:

1. The first deals with the use of sodium pentobarbital during the impending shock state before irreversible shock develops. It has previously been suggested that such an agent may hinder or may facilitate eventual recovery. These latest findings indicate that the employment of sodium pentobarbital, in animals some forty-five minutes after a severe impending hemorrhagic shock state has been produced, very markedly increases their likelihood of survival when later transfusions are given.

2. The second approach to the problem consisted of exploring the possibilities of the employment of a new drug, Dibenamine (dibenzyl-β-chlor-ethylamine hydrochloride). The latter, when administered to animals either before or after severe hemorrhage has been produced, was also very effective in augmenting the number which survived when compared with control animals.

VALUE OF ANCIENT CHINESE TREATMENT CONFIRMED

Medical science has confirmed the two-thousand-year-old Chinese treatment for the relief of pain in sprains, it was revealed by Drs. Janet Travell and Audrie L. Bobb of the Cornell University Medical College.

Speaking before the American Society for Pharmacology and Experimental Therapeutics, the researchers reported that the simple procedure of acupuncture, used in the Orient two thousand years ago, proved valuable in restoring painless function of a sprained ankle despite the fact that the joint remained swollen and discolored.

While much attention has been given to the treatment of sprains by local injection with novocaine, a salt solution, or by merely needling precise spots within the injured tissues, it remains an enigma as to why this simple procedure produces the striking and long-lasting relief it does.

Travell and Bobb indicated that while they were unable to explain the relief of pain by the needling procedure, they were inclined toward the view that persistent pain following a sprain is due to pressure exerted by edema fluid which has accumulated within the ligamentous structures and that the abolition of pain by local injection techniques is due to mechanical release of pressure when the needle ruptures deposits within the injured tissues.

LEUKOCYTOSIS-PROMOTING FACTOR OF EXUDATES

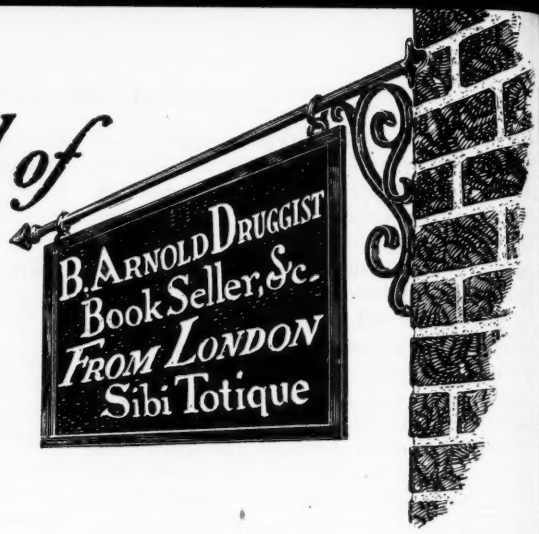
Dr. Valy Menkin of Temple University, long a student of the mechanism of the inflammatory reaction in tissues, reported progress in the isolation of the factor in inflammatory exudates responsible for the accompanying elevation in the level of white blood cells. The substance, which seems to be a relatively simple and stable material, is innocuous when injected into humans and promises to have application in therapeutics.

VITAMIN M AND GASTROINTESTINAL ABSORPTION

The response of patients in six relapses of sprue after therapy with only the vitamin M group (pteroylglutamates) was discussed by Dr. W. J. Darby and his associates at the Vanderbilt University Medical School. Satisfactory hematologic remissions were accompanied by clinical evidences of improved-gastrointestinal absorp-

(Continued page 398)

A handbill of



by KENNETH REDMAN

IN THE early seventeen sixties a freshly painted sign swung over the doorway of a shop at George and Church Streets, New Haven, Conn. It read: "B. Arnold, Druggist, Bookseller, Etc., from London Sibi Totique."[1] An apothecary's apprentice in early youth, the owner had opened his establishment after brief adventures in the French and Indian war and in trading with the West Indies. Later this proud and ambitious man, Benedict Arnold, was to become an infamous traitor to his country.

While browsing through the Toledo Museum of Art some time ago I chanced to notice a handbill from Benedict Arnold's shop in a display of early American printing. So far as is known at the Museum, it is the only copy of this broadside. The document bears no date, but is believed* to have been printed in 1765.[2]

An examination of the advertisement reveals that besides "A very large and fresh assortment of DRUGS and chymical Preparations," a large stock of books, surgeons' instruments, jewelry, pictures, tea, rum, sugar, Durham Flower, mustard, etc., and "many other Articles, very cheap, for Cash or short Credit" diversified his business.

It is doubtful if the 40 drugs and preparations listed represent the entire pharmaceutical stock of the store, for the bill refers to "many other articles" for sale, and this could hardly be considered "A very large . . . assortment" of drugs even in those days. On the other hand, it seems more likely that this list represents some of the more popular drugs of that time. The present paper is concerned only with the unusual medicinal items for which an explanation is needed.** We shall see what "My Lady" was taking for her "inward weaknesses" and "My Lord" was getting for "gouty nodes," the "evil," and leprosy.

ESSENCE OF WATER DOCK.—Water dock is described in The Edinburgh New Dispensatory of 1791.[4] The root of *Rumex Aquaticus* L. is stated to be official in the Edinburgh Pharmacopœia of 1783. The leaves are stated to "gently loosen the belly," and have sometimes entered decoctions for removing a costive habit. The roots are claimed to be astringent and "are celebrated for the cure of scorbutic and cutaneous disorders, both as exhibited internally and applied externally . . . ."

Just what is meant by "Essence" here is not entirely clear. At about this time essences were referred to as "Essential Oils,"[4] but "Essence of Peppermint" patented in England in 1762[5] is an alcoholic preparation similar to the preparation now known by the name but made by a more complicated process. Paris[6] has pointed out that the "essences" prior to about the time of Henry II (ca. 1150) were of necessity extracts produced by evaporation of decoctions, since distillation was unknown. It seems probable

From the School of Pharmacy, North Dakota Agricultural College, Fargo, North Dakota.

Presented to the Section on Historical Pharmacy of the American Pharmaceutical Association and the American Institute of the History of Pharmacy, Pittsburgh meeting, 1946.

Acknowledgment is made to Nell L. Jaffe of the Toledo Museum of Art for furnishing a photograph of the handbill and information concerning it.

* Bienfang[1] states that Arnold went to London "and after buying a stock of drugs, books, and other goods, came to New Haven, and established himself in the retail business. This must have been about the year 1764." It seems quite plausible that Arnold would use a handbill of this type to advertise his new shop. Abbatt,[3] however, says Arnold opened his shop in New Haven in 1762.

** For a discussion of Benedict Arnold as a druggist, reference is made to Bienfang[1] and Abbatt.[3]

that this was either some decoction or alcoholic preparation of the plant, rather than a volatile oil.

ESSENCE BALM GILEAD.—"The genuine Balm of Gilead is the resinous juice of *Commiphora Opalbalsamum* (L.) Engl. (Fam. *Burseraceae*), a small evergreen tree, growing on the Asiatic and African shores of the Red Sea." It was stated to be a very scarce article of commerce which "has prevented it from coming into use among us [Europe]; and it is now in general believed that the Canada and Copaiva balsams will answer every purpose for which it can be employed."[8]

ESSENCE BIRGAMONT.—Oil of Birgamont is official in the National Formulary VIII.[9] Probably an alcoholic solution was used in Colonial days.

TINCTURE OF VALERIAN.—This preparation is still official in National Formulary VIII.[10] The tincture was official in the London (1788) and Edinburgh Pharmacopœias (1783). It was used in the "cure of epileptic disorders"[11] and is still used to some extent for treating nervous excitations.

PECTORAL BALSAM HONEY.—This is reported to be Tincture of Benzoin or Tincture of Tolu.[12]

BATEMAN'S PECTORAL DROPS.—According to Wootton,[13] Benjamin Okell patented Dr. Bateman's Pectoral Drops on March 31, 1726. No specifications were given as they were not required until nearly a century later in England. It was claimed to be useful in rheumatism, afflictions of the stone, gravel, agues, and hysterics.

The Philadelphia College of Pharmacy[14] adopted a formula for the "nostrum" to standardize the preparation, since it was then being made in varying strengths of opium, from 7.5 grs. to 100 grs. per pint. Bateman's Pectoral Drops was official in the National Formulary V,[15] with an infant dose of 10 minims.

BRITISH OIL.—Betton's British Oil was patented in 1742.[16] It was "extracted from the black, pitchy, flinty rock or rock lying immediately over the coal in coal mines." This was reduced to a powder and then heated in a closed furnace. The product was designed "for the cure of rheumatic and scorbutic and other cases."

The Philadelphia College of Pharmacy[17] adopted a formula "for the preparation of a rubifacient liniment, so much sold under the name British Oil," as follows: Olei Terebinth fl. oz. viii; Olei Lini fl. oz. viii; Olei Succini fl. oz. iv; Olei Juniperi fl. oz. iv; Petrolii Barbadens, fl. oz. iii; Petrolii American (Seneca Oil), fl. oz. i.

GODFREY'S CORDIAL.—This appears not to have been a patented preparation up to 1785,

but Wootton[18] indicates that it was used prior to 1722. This was referred to by the Philadelphia College of Pharmacy as one of the compound tinctures of opium for which it was publishing a uniform formula.[19] The compound tincture was prepared from "Tr. Opii, Molasses, Alcohol, Water, Carbonate of Pottassa, and Oil of Sassafras." Paris[20] gives a somewhat similar formula. With reference to its use, he says "The extensive and indiscriminate use of this nostrum in the nursery is a subject of national opprobrium, and is so considered by foreign writers."

TURLINGTON'S BALSAM LIFE.—British Patent No. 596, Jan. 18, 1744, termed it "A specifick Balsam, called the Balsam of Life." This preparation was claimed to "cure the stone, gravel, cholick, and inward weaknesses." Twenty-eight ingredients comprised the balsam as follows: "storax 5 lb., coriander seed 1 lb., aloes 2½ lb., fennel 1 lb., mastick 1½ lb., frankinsence 1½ lb., anniseed 1 lb., benjamin† 5 lb., angilica 1 lb., gum elemy 7 lb., cinnamon 2 lb., guiacum 3 lb., cloves 1 lb., myrrh 6 lb., nuttmeggs 8 oz., arabick 8 lb., winterbark†† 1 lb., perne [peru?] balsam 5 lb., nettle seeds 1½ lb., tolu 1 lb., juniper 1 lb., saffron 1 lb., mace 4 oz., oyle 1 lb., St. John wort 8 lb., marshmallows 4 lb. Distill and digest the same with a sufficient quantity of rectifyed spirits in a glass vehicle until the same become a balsam, on a sand heat or a slow fire." Compound Tincture of Benzoin, U. S. P. XIII, with 4 ingredients, is in reality a simplified form of Turlington's Balsam.

BALSAM HEALTH.—Oleum Anedinum, or British balsam of health, is recorded as British Patent No. 673—3rd July, 1752. This preparation was patented by Joseph Collett and James Jackson "for the Cure of Gouty Nodes, and Tumours, Rheumatick and Sciatick Pains, Fistulas and Ulcers, the Evil§ and Leprosy, Bruises and Sprains, the Dropsy, Stone, and Gravel, Sterility and Impotency, Consumptions and other Disorders of the Breast and Lungs."

The preparation was "extracted from a hard substance, . . . which, to the sight, are not much unlike to coarse or rough succini, and is to be had near the river sides in many parts of this Kingdom . . . and which afford a light and pure oil, with a considerable quantity of a more thick and heavy substance that will sink in water, which by art is reduced to a most pure and perfect gum, both of which are extracted, rectified and united in the manner following:" A more detailed description of the process is then given.

† Benzoic acid. For an explanation of this corruption, see Wootton.[21]
†† *Drimys Winteri* Forster.
§ The King's Evil or scrofula.

BENEDICT ARNOLD

The dose for children was "from five to thirty drops upon sugar, and dissolved in water, tea, etc., and to grown persons from thirty to one hundred and forty drops; and for outward uses it is to be either bathed on, or a clean linen cloth dipped in the balsam and applied to the part"

EATON'S STYPTICK.—British Patent No. 442, 18th April, 1722, by Robert Eaton. "A New Chymical Preparacon and Stiptick Medicine void of Corrosive qualities, being both Cordial and Balsamick, which universally stops all externall and internall Bleeding, and of it Selfe Heals all Fresh Wounds, and vastly exceeds all other Stypticks that ever were prepared in England."

FRANCIS' FEMALE ELIXIR.—British Patent No.661, 27th of March, 1751, by Joseph Fraunces. "A New Chemical Preparation which I called by the name of the Female Strengthening Elixir, which is extracted from the most Powerful Parts of the Materia Medica, and is a most Excellent and almost Infallible Remedy for the Fluor Albus§§ in Women, and in Men an Excellent Restorative and a most Efficacious Remedy in all Seminal Weaknesses and Debility of the Genital Parts, from whatsoever Causes arising; that in Constitutions worn down with Long and Tedious

§§ Leukorrhea.[22]

Illness, it will afford great Relief by restoring the lost Spring of the Solids, and that it raises the Spirits, removes Hysterical Complaints, and gives New Life and Vigour to his whole Body."

The preparation was made as follows: "Take of lapis smaraged,* topaz hyacinth, sardin, saphir, of each half a pound; calcine them, and put them into a gallon of spirit of wine, with six ounces of calx of antimony, and nine ounces of crocus martis astringens;‡ set them in a dunghill for the space of two months; strain and filter; then add balsam copivy [balsam copaiba?] tolu, male [male fern?], frankincense, of each four ounces; balm of Gilead, three ounces; isinglass, one pound; shavings of hartshorne and of ivory, of each two pounds; white nettle flowers, seven handfull; roots of bistort and tormentil, of each one pound; the best rhubarb highly torrifyed, four ounces. Distill and cohobate six times. Then add salt of vipers, half an ounce, camphire, well purified by dissolving in spirit of wine, and distilling in a glass curcurbit, three ounces. Digest these in a sand heat a week, filter, and it is done." This is, indeed, a remarkable preparation!

GREENOUGH'S TINCTURE FOR THE TEETH.—A search of British patents reveals a "Remedy for pains and disorders in the stomach, bowels, and other membranous parts of the body" by Thomas Greenough (Patent No. 716, 31st October, 1757) and a "Samaritan Water" for strains, bruises, wounds, and many complaints (Patent No. 1206, 8th January, 1779) patented by the same man, but no patent for his "Tincture for the Teeth" was found.

Paris[25] gives a formula for the tincture on the authority of a "Mr. Gray:"† "Of almonds, 2 oz. Brazil wood* and Cassia Buds, equal parts, half an ounce; root of the Florentine Iris, 2 dr.; of Cochineal, Salt of Sorrel, and Alum, equal parts, one drachm; Rectified Spirit, 2 pints; Spirit of Horse Radish, half an ounce."

SPIRITS SCURVY GRASS.—The leaves of *Cochlearia Officinalis* were official in the London Pharmacopœia of 1788 and the Edinburgh Pharmacopœia of 1783. According to the Edinburgh New Dispensatory,[27] the medicine is "pungent" and "stimulating;" capable of dissolving viscid juices, opening obstructions of the viscera and the more distant glands, and promoting the fluid secretions: it is particularly celebrated in scurvies, and is the principal herb employed in these kinds of disorders in the northern countries."

A formula for Spirit of Scurvy-grass in the Edinburgh Pharmacopœia of 1740[28] is as follows: "Take of fresh Scurvy-grass bruised, ten pounds; and rectified Spirit of Wine, five pints; let them macerate together for twelve hours; and then draw off five pints of the liquor, in Balneo Mariae."**

Scurvy grass (*Cochlearia Officinales*) is still an article of commerce.[29]

EAU DE LUCE.—This is the "Succinated Spirit of Ammonia" of the London Pharmacopœia of 1788, and was composed of alcohol, ammonia water, rectified oil of amber and soap. It was used for cases of fainting and was taken internally and applied externally for rattlesnake bites.[30]

AETHER.—The ether prepared in this period appears to be of surprisingly high purity, with a specific gravity reported in the proportion of about 7 to 8 compared to the most highly rectified spirit of wine.[31] This compares favorably with our present official ether and alcohol.[32] Ether[31] was applied to the head to relieve violent headaches and applied to the jaw for toothache. It was also given internally for whooping cough, asthma, hysterical cases and almost every spasmodic affection, but it was not used as an anesthetic until about eighty years later (1842) by Dr. Long of Boston.[33]

DAFFY'S ELIXIR.—Wootton[34] gives the history of this preparation, which was invented by the Rev. Thomas Daffy. MacEwan[35] gives a formula (Dicey's) for it. The Edinburgh New Dispensatory[36] claims that the Tincture of Senna of the London Pharmacopœia (1788) and the Compound Tincture of Senna of the Edinburgh Pharmacopœia (1783) are equal to or superior to most of several preparations sold under the name of Daffy's elixir. They were suggested to take off the "mawkish taste" of castor oil.

HOOPER'S PILLS.—British Patent No. 592, July 21, 1743. Patented by John Hooper.

JAMES'S FEVER POWDER.—British Patent No. 626, February 11, 1747, by Robert James. James asserted[37] that the powder had been "learnt" from a German, William Schanberg. "It was clearly proved afterwards that the receipt sworn to in the patent would not produce the powder patented by James and sold by him and by F. Newberry."[39]

OIL RHODIUM.—"True Oil of rhodium is distilled from the roots of *Convovulus Scoparius*

+ Emerald.[23] For a discussion of precious stones used in medicine, see Wootton's "Chronicles of Pharmacy," vol. 2, pp. 32, 37.

‡ Prepared by mixing iron filings with twice the weight of powdered sulfur, deflagrating and reverberating for a long time at a high temperature.[24]

† Probably the author of *Gray's Supplement to the London Pharmacopœia*, the first edition of which appeared in 1812.

* *Caesalpinia brasiliensis* (Fam. Leguminosae).[26]

** Waterbath.

and other species, and is obtainable; but factitious oils are usually sold under the name, the oil being used as a bait or 'entice.'"[38]

SPAW & PIRMONT WATERS.—These are spring waters from Germany.[39]

Conclusion

1. A study of some of the drugs and medicines listed in a handbill from Benedict Arnold's drugstore has been made.

2. The influence of the East on English medicine can be seen. Likewise the trend toward the use of native English drugs can be detected.

3. A dominant influence on American pharmacy by the mother country was still manifest until at least the time of the American Revolution.

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AN EMULSION OF PARALDEHYDE

ALTHOUGH paraldehyde has been largely supplanted by newer sedatives, a number of physicians still prescribe it for hypnotic effect that produces a natural sleep without unpleasant after effects. The Florida Bureau of Professional Relations, conducted from the University of Florida School of Pharmacy, is currently publicizing to physicians an Emulsion Paraldehyde having the following formula:

Tragacanth	0.5	Gm.
Paraldehyde	45	cc.
Dist. water	20	cc.
Fldext. glycyrrh	8	cc.
Syrup, *q. s. ad*	120	cc.

M. & Ft. Emulsion (Shake Label)

Sig.: As directed, well diluted with ice water or chilled fruit juice.

Each teaspoonful contains about 2 cc. paraldehyde. Thus, for insomnia, two teaspoonfuls gives the average U. S. P. dose (4 cc.).

To avoid a burning sensation and disagreeable taste, which has limited the use of paraldehyde, it is important that each dose be administered well diluted in a chilled vehicle. Preliminary cooling of the mouth by a cold drink will be helpful, the Bureau of Professional Relations points out.

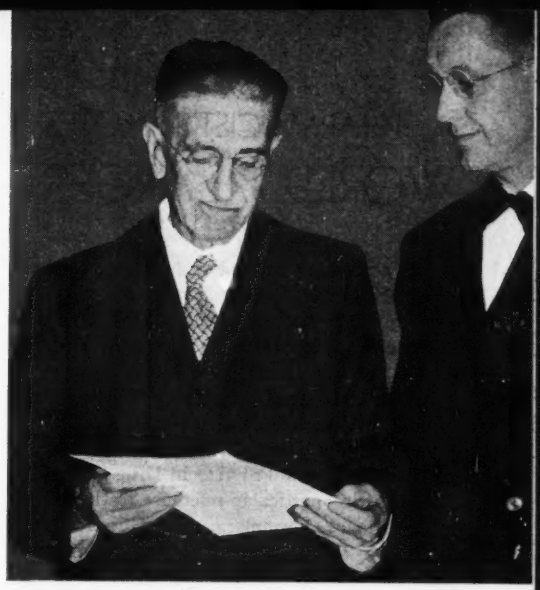
Paraldehyde is still considered to be an effective hypnotic, especially for simple insomnia without pain although it may produce an untroubled sleep in the presence of mild dull pain. It is said to be advantageous in the treatment of delirium tremens and to quiet the maniacal patient.

Usual therapeutic doses of paraldehyde are remarkably free from untoward effects upon the circulatory system and respiration. Habituation does not appear to be a problem, probably because of the unpleasant taste. Tolerance can develop. Doses of 3 to 8 cc. are usually prescribed, although doses of 15 to 20 cc. may be administered. Toxic manifestations have been observed following small doses but are rare.

HONORARY PRESIDENT

AUGUSTUS C. TAYLOR

RECEIVES LIFE CERTIFICATE AS TRIBUTE FROM D. C. ASSOCIATES



AUGUSTUS C. TAYLOR, honorary president of the AMERICAN PHARMACEUTICAL ASSOCIATION, was further honored for many services to pharmacy at the 1947 meeting of the District of Columbia Pharmaceutical Association. Harold C. Kinner, D. C. secretary, is shown above presenting to Dr. Taylor (left) a life membership certificate in the A. PH. A. as a token of esteem and respect from his associates.

Dr. Taylor is president emeritus of the D. C. Association and is past-president and now secretary of the D. C. Veteran Druggists Association. At 78 he remains active as president of the D. C. Board of Pharmacy, editor of the *National Capital Pharmacist*, and directs the professional promotion activities of Peoples Drug Stores, Inc.

Since the age of seven Dr. Taylor has been associated with pharmacy and says he has "loved every minute of it." As a youngster he helped his great-grandfather, a physician-apothecary, gather herbs and roots and was fascinated by the grinding of crude drugs and by the pungent odors that pervaded his laboratory.

By the time young Taylor was sixteen he was at work in the pharmacy of Bartlett and Plummer in New York City. Meanwhile his parents had moved from Detroit to Washington, D. C., where Dr. Taylor returned, after two and a half years in New York, and has remained ever since.

He became licensed in 1890 and practiced in several establishments before purchasing his own pharmacy. Eventually he owned three establishments, in which he developed an excellent prescription practice.

His leadership in retail pharmacy was soon recognized by his election as president of the D. C. Pharmaceutical Association in 1902. Since then he has served many times in that capacity and as secretary. Dr. Taylor was first appointed to the D. C. Board of Pharmacy in 1904 and has been president of the Board for the past twenty-five years. In the National Association of Boards of Pharmacy he has served as president, member of the executive committee and member of other committees.

Dr. Taylor stands among those early pharmacists who took the lead in advancing the educational requirements for pharmacists. He was named to the N. A. B. P. committee assigned the task of bringing about an accrediting agency for colleges that would be more satisfactory than the system then used. When the N. A. B. P. effort was joined with that of the A. A. C. P. and the A. PH. A., and the American Council on Pharmaceutical Education was formed, Dr. Taylor became a member of this accrediting agency. He continued on the Council until last year when poor health required his resignation.

The A. PH. A. honorary president was also one of the delegates to the National Drug Trade Conference in its early days, served for a decade as chairman of the N. A. R. D. Committee on Pharmacy Laws, and while in retail practice was a member and officer of various Washington business and civic groups.

Dr. Taylor first joined the AMERICAN PHARMACEUTICAL ASSOCIATION in 1910 and has been a member of various A. PH. A. committees through the years.

In recognition of this lifetime of work in organized pharmacy the AMERICAN PHARMACEUTICAL ASSOCIATION named Dr. Taylor as its 1946–47 honorary president, and Mrs. Taylor became honorary president of the A. PH. A. Women's Auxiliary.

A PHARMACIST'S NOTES ON WORLD'S LARGEST MEDICAL MEETING

A.M.A.'S CENTENNIAL CONVENTION BRINGS 15,667 PHYSICIANS FROM U.S. AND ABROAD TO PROGRAM OF 500 PAPERS AND THE SCIENTIFIC EXHIBITION . . . A.PH.A. REPRESENTED BY EXHIBIT ON DRUG STANDARDS

THE centennial meeting of the American Medical Association held at Atlantic City in June constituted the largest assemblage of physicians ever held anywhere in the world. Registered attendance was 15,667.

One of the highlights of the meeting was the Scientific Exhibit, which included an exhibit by the AMERICAN PHARMACEUTICAL ASSOCIATION on "A Century of Progress in Drug Standardization," with particular reference to the role of the National Formulary. There were more than 250 other exhibits illustrating medical advances and investigations or work in closely related fields. Because of limited space more than 40% of exhibit applicants had to be refused.

The Technical Exposition included about 400 exhibits, a large number of them by pharmaceutical manufacturers illustrating the research and production techniques through which pharmacy provides constantly improved drugs for medical practice.

At the professional sessions some 500 papers were presented and a large number of symposiums were held. In each section a special paper dealt with a hundred years of progress in that medical or surgical specialty.

At the opening session of the House of Delegates Dr. Harrison H. Shoulders, in his address as president of the Association, expressed concern with the diminishing number of young physicians who wish to enter general practice.

"Specialization has been constructive in bringing about better medical care," Dr. Shoulders said. "It will continue to do so if kept in proper relation to the important and vital branch of general practice. It becomes destructive in its effect when the number of specialists is too large in proportion to the number of general practitioners. . . . There can be no doubt that a need exists for the restoration of the family physician, or general practitioner, to the position of importance and prestige which he once occupied and which he deserves to occupy today."

Dr. Shoulders recommended that the House of Delegates request the appointment of a special committee to study the broad field of medical education and service, with particular reference to the training of general practitioners and means by which communities needing physicians may be aided.

Pursuing further the idea of developing the general practice of medicine, President-elect E. L. Bortz recommended to the House of Delegates that an additional scientific session be planned for general medical practitioners of the nation, possibly to be held in different geographic districts each year as part of the semiannual meeting. It is interesting to note that a somewhat similar need has been felt in pharmacy, and the AMERICAN PHARMACEUTICAL ASSOCIATION recently inaugurated an experimental program of district meetings—the first held in Omaha in April—specifically designed for general practitioners of pharmacy in areas distant from the annual convention site.

Another proposal at the A. M. A. centennial meeting recommended the creation of a National Emergency Medical Service Administration, as a function of the government, to mobilize medical and allied resources in time of emergency. This would consist of representatives of various organizations, including the AMERICAN PHARMACEUTICAL ASSOCIATION.

In the report of the Joint Committee for the Coordination of Medical Activities it was announced that the AMERICAN PHARMACEUTICAL ASSOCIATION, together with the American Red Cross, had been added to the liaison membership during the past year. This group functions as a forum and source of advisory reports on various aspects of medical care.

Two unusual sidelights of the meeting were the art exhibit and competition for pictures and sculpture done by physicians and for non-medical writings in various classes of prose and poetry. More than 2000 entries were submitted.

The epoch-marking event of the centennial of the American Medical Association—which precedes A. PH. A.'s centennial by five years—was noted by the government through a special postage stamp commemorating American medicine's service to the public.

Brief glimpses into some of the section meetings held during the centennial convention are represented by the summaries which follow. More extensive information on meeting reports will be available to pharmacists through THIS JOURNAL as the complete papers are published in the medical literature.

LIQUID OXYGEN IN DERMATOLOGY

Liquid oxygen was found to be an effective local destructive agent in the treating of more than a thousand patients with skin disease, according to a paper presented before the Section on Dermatology.

The physicians—Roy L. Kile and Ashton L. Welsh of Cincinnati, O.—treated many types of lesions. Warts comprised the largest group; hemangiomas formed another large group of the lesions treated. Leukoplakia and keratoses of the seborrheic and senile types were also most successfully treated with liquid oxygen.

"Applications are made by using ordinary cotton wrapped around a wood applicator," the physicians stated. "The size and shape of the cotton tip can be varied with the size of the lesion to be treated. The applicator is readily dipped into the oxygen, withdrawn and applied to the lesion, with varying amounts of pressure. The liquid oxygen is so cold that the lesion rapidly turns white as it freezes solid. The firmer the pressure, the deeper is the effect. A thorough freezing of a small lesion occurs in a few seconds."

Drs. Kile and Welsh pointed out that liquid oxygen is inexpensive and perfectly safe to use if reasonable care is exercised in handling it. It is easier to handle and apply than is solid carbon dioxide and the simplicity of its use makes it the procedure of choice for patients presenting multiple lesions which render other forms of treatment impractical.

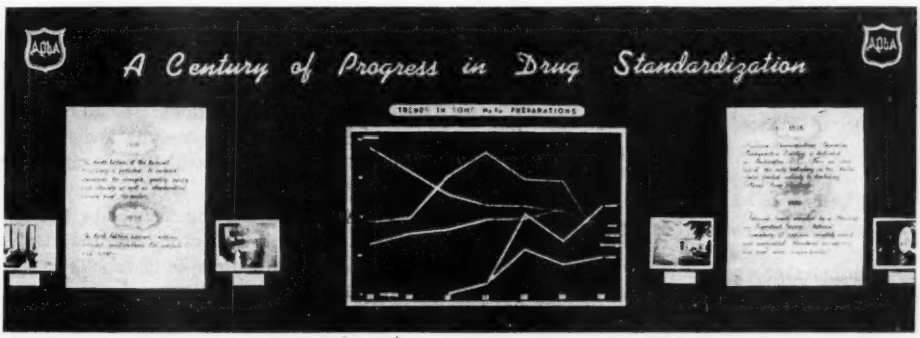
PSYCHIATRISTS DISCUSS STRESS OF MODERN LIVING

Working hard to achieve fame and prestige is "one of the recognized ways of living," two California psychiatrists said in a paper read before the Section on Nervous and Mental Diseases, but warned that "this public ideology in turn imposes unusual stress and strain upon the individual.

"People feel the necessity to improve their condition rather than to enjoy their existence," said Drs. Jurgen Ruesch and Karl M. Bowman of the University of California Medical School and the Langley Porter Clinic.

"The striving for betterment, income, position, power and property requires a permanent adaptation of the individual to new groups," the psychiatrists pointed out. "He has to undergo a remarkable change in his system of values, in his techniques of mastery and in the habits and customs acquired in childhood if he changes from one social class to another. In such a change the 'know how' gets lost, the person gets isolated, and social, mental or physical pathology is the result.

"We have been able to show that in chronic disease in general, in duodenal ulcers and in thyroid patients there is an unusual number of social climbers and strainers, that is, people who want to improve their social status. This contrasts, for example, with the findings in chronic alcoholism, in which condition the patients are



Part of the American Pharmaceutical Association exhibit at the centennial meeting of the American Medical Association is shown in the photograph above.

usually social decliners. In ulcer and thyroid patients in particular there was an unusual incidence of foreign born and native born persons of foreign parentage. This fact would indicate that culture change and the resulting conflict of values were a source of stress and strain in these patients."

In discussing the relationships between frustration and disease, Drs. Ruesch and Bowman said:

"Frustration is psychologically expressed in anger and physically in terms of tension. Outside interference with an individual's goal-directed behavior produces anger and tension and prepares the organism for fight or flight. Pulse rate and blood pressure go up, muscular tension ensues and some biochemical changes take place. After release of energy in terms of action the organism returns to its normal resting condition.

"However, in modern civilization the primitive reactions of flight or fight cannot be used without previously learning complicated procedures and modifications of these primitive reactions, and many individuals are unable to acquire these socially acceptable forms of behavior.

"While the normal person channelizes aggression in work, play and sex, maladjusted and immature individuals are unable to release pent-up energy. Anger and tension, therefore, persist over prolonged periods of time because no discharge of energy occurs. This condition of suspension seems to influence vascular, muscular, secretory and endocrine reactions."

SYNTHETIC RESIN FOR PEPTIC ULCER

Synthetic resin or plastic will find an important place in the treatment of peptic ulcer, predicted Drs. Manfred Kraemer and David J. Lehman, Jr., of Presbyterian Hospital, Newark, N. J. A polyamine-formaldehyde resin, Amberlite IR-4, was used in the successful clinical trials reported before a joint meeting of the Sections on Surgery and on Gastro-enterology and Proctology.

The mode of action of the anion-exchange resin is purely a mechanical one—adsorption of stomach acids—and the resin is excreted unchanged. Thus the acid-base balance of the blood is not affected. Annoying side reactions of many other antacids, such as constipation and diarrhea, are also avoided. No ill effects upon the gastrointestinal tract have been observed, the physicians reported.

The resin is used as a fine mesh powder to increase the adsorptive surface. It may be prescribed as an aqueous suspension, but a "sandy" taste and formalin-like odor make it desirable to administer the resin in capsule form. The product is supplied under the name "Resinat" by the National Drug Company, where developmental work was carried out, but is currently available only for experimental use.

STREPTOMYCIN LOCALLY FOR EYE INFECTIONS

Certain types of eye infections may be quickly controlled by use of streptomycin, Drs. John G. Bellows and Chester J. Farmer of the Northwestern University Medical School reported to the Section on Ophthalmology.

Both experimental and clinical evidence showed that in most cases of chronic and acute infections of the cornea and conjunctiva the infecting microbes are rapidly eliminated after administration of streptomycin drops and that healing follows rapidly.

Experiments of Drs. Bellows and Farmer took the form of local application of the drug in eye infections when it became apparent that general systemic injection could not raise the streptomycin to a sufficient level in the infected tissues to be effective without having toxic effects.

Experimentally, corneal ulcers were first induced in rabbits, after which streptomcin was applied to the right eye at stated intervals, while the left eye was left untreated. In all cases, the untreated eye was destroyed by the infection, while the one treated with streptomycin recovered.

In addition to treating the acute abscesses with drops, the investigators injected streptomycin directly into the eyes of rabbits to learn its effect on preventing vitreous abscesses.

"Animals receiving intravitreous injections of a relatively small amount of streptomycin in a calcium chloride complex did not develop a vitreous abscess if treated within six to eight hours of inoculation. On the other hand, infection resulting in eventual abscess occurred in the untreated control eye," it was reported.

On the basis of their experiments, clinical application was attempted in 23 cases of human ocular infection. Streptomycin drops were used successfully in seven cases of acute inflammation of the conjunctiva. In chronic infections of both the conjunctiva and cornea, varying success was obtained for a variety of infecting organisms.

"All six cases of chronic conjunctivitis in which organisms were found in the conjunctiva just prior to streptomycin therapy became sterile a few days later," the paper said. "However, the clinical appearance in some instances was unchanged, suggesting that other causes than

bacterial were active in continuing the inflammation. It was interesting to note that streptomycin exerted a favorable influence in a case of chronic conjunctivitis with clinical characteristics of trachoma."

IDIOSYNCRASY TO DRUGS

Dr. Carl A. Dragstedt of Northwestern University Medical School told the Section on Experimental Medicine and Therapeutics that idiosyncrasy to certain drugs is "one problem that has challenged us seriously and thwarted us shamefully."

"To me," he added, "it represents one of the most challenging of all the problems in medicinal therapeutics." He stated that there was no satisfactory explanation as to why some people become allergic to certain drugs and others do not. Continuing, he said:

"Experience has taught us that idiosyncrasies to aspirin, aminopyrine, the organic arsenicals, the sulfonamides, thiouracil, quinine and several others are considerably more frequent than to alcohol, amphetamine, cascara, chloral hydrate, digitalis and the like, but there is little ground for any generalization that would have prophetic value as to the potentiality of idiosyncrasy for a hitherto unknown drug.

"The untoward reactions to aspirin appear to be allergic in all instances and a substantial number of the sulfonamide and penicillin reactions appear to be on an allergic basis.

"It seems probable that some drugs may produce both allergic and non-allergic types of toxic reactions at the same time."

POSTWAR ANXIETIES AND DUODENAL ULCERS

Nervous strain, anxieties, and heightened tempo of living during the war and immediately after have resulted in an increase in the incidence, recurrence, and severity of duodenal ulcers, Dr. Maurice Feldman of Baltimore indicated in a paper presented before the Section on Gastroenterology and Proctology.

The rising incidence of the disease was estimated at 4% based on a study of 1154 cases. The cases studied included persons suffering from gastric disturbances five years before the opening of the war and five years after it began. For the entire ten-year period, the incidence of duodenal ulcer among persons with digestive disturbances was 16%.

Although the cause of such ulcers still remains a debatable question, there is no doubt about the association of psychogenic factors, that is, worry, anxieties, and general nervous tension, Dr. Feldman said.

Many more men than women suffer from peptic ulcers and this ratio remained virtually unchanged during the prewar and war years, according to the study. In both periods, more than 80% of the sufferers were men.

"GP" NEEDS PSYCHIATRIC FUNDAMENTALS

When a person imagines he's sick he's really sick, Dr. Edward Weiss of Philadelphia told the Section on General Practice of Medicine.

In a paper entitled "Psychotherapy in Everyday Practice," Dr. Weiss pointed out that their emotional lives play an important role in the disorders of so many patients that the doctor in general practice must know the fundamentals of psychotherapy in order to achieve the best results.

Defining "psychosomatic medicine" as the simultaneous application of a study of the patient's mental and physical life, Dr. Weiss said that although "psychosomatic" is a new term it describes an approach to medicine as old as the art of healing itself.

"The revered family doctor of the small community used his knowledge of his patient's personal life in evaluating his history," he observed. "He knew everything that was going on and had a background of information from personal observation.

"Now in our elaborate medical institutions, with a lack of knowledge of the patient's background, we over-emphasize the so-called scientific aspects of medicine and relegate to the background the social and emotional factors that may enter into illness. As a consequence, our methods of taking a patient's medical and personal history have not kept pace with general progress in medical science."

As a remedy, Dr. Weiss proposed better training of both undergraduate and graduate medical students in psychiatric fundamentals.

CURRENT *Cost Control Problems*

OPERATION OF DEPARTMENT FAR UNDER CAPACITY GREAT ECONOMIC HANDICAP. . .PHARMACIST URGED TO STUDY COSTS PER TRANSACTION . . . MARGIN OFTEN OVER-EMPHASIZED

by PAUL C. OLSEN

ACCOUNTANTS in various fields are giving increased attention to the effect on costs of enterprises operating at less than capacity. A refinement of this problem is the determination of break-even points. This break-even point is the result of the interaction of fixed and variable costs.

Probably the most outstanding example of these effects in pharmacy is to be found in the average prescription department. The total of 45,000 retail pharmacies in the United States is estimated to fill annually 200 to 300 million prescriptions. This is an average per pharmacy of 4400 to 6600 prescriptions, or 12 to 18 daily per pharmacy. There are believed to be about 75,000 licensed pharmacists in retail practice. Thus the average per pharmacist is 2700 to 4000 prescriptions annually, or 8 to 12 daily.

These averages reveal only part of the actual situation. There is evidence that about 5000 pharmacies, or scarcely more than 10% of all pharmacies, compound about three-fourths of all the prescriptions that are dispensed in the retail pharmacies of the United States. This leaves one-fourth of all the prescriptions to be filled by about 40,000 pharmacies or drugstores, or an average for each one of these 40,000 establishments of 1250 to 1875 prescriptions per year. This is a daily average of 4 to 6 prescriptions.

These figures are enough to confirm that, typically, the prescription department in a pharmacy is operated at very much less than capacity. This is mathematical evidence of the assertion frequently made that the time of a pharmacist is devoted principally to non-professional activities. Moreover, the receipts from this prescription compounding are nowhere near enough on the average to pay the salary of even one pharmacist per establishment. The average price per prescription, which is about $1.10, indicates total prescription receipts that are commonly $1375 to $2062 per pharmacy per year. When ingredient and container costs are taken into consideration, the gross margins realized probably range between $700 and $1050 annually per pharmacy.

It does not require elaborate calculations to reveal the tremendous leverage on costs and earnings that would result if this average of 1250 to 1875 prescriptions per year for the large majority of U. S. pharmacies were doubled to 2500 to 3750 prescriptions per pharmacy per year. That would add $700 to $1050 to the gross margins earned. This addition probably would be made without any discernible addition to other operating costs.

The result would be that such an addition of $700 to $1050 in gross margins realized in the

Presented to the Section on Pharmaceutical Economics, AMERICAN PHARMACEUTICAL ASSOCIATION, 1946 meeting.

At the time this paper was prepared and presented the most recent figures available for prescription volume, average price per prescription and number of drugstores in operation covered the year 1944. Subsequent changes in these figures do not invalidate the conclusions expressed in this paper.

prescription department would be a direct addition to the net profit.

Increases in prescription receipts of very much larger proportions are decidedly common. The 5000 or so pharmacies in which three-fourths of the prescriptions are believed to be compounded in this country are comparable to country club membership. New members are constantly being added as they develop interest and capability in professional activities and other members drop out for lack of that interest or aggressiveness.

Intangible benefits also result for a proprietor when his prescription department is operated nearer to capacity. The professional pride that an owner takes in a successful prescription department is sure to be more resultful than the feeling he has toward the prescription department that all too obviously is unprofitable. This increase in professional pride is bound to reflect itself in a rise in income from related professional services and products.

What Is the Treatment?

So much for the diagnosis. What is the treatment?

The first step is to put the pharmacy itself in order. This means not merely actual but outstandingly evident cleanliness. It means no signs, displays and other appeals in the establishment to patrons for self-diagnosed treatment of their ailments.

It means a satisfactory minimum amount of equipment suitable for the extent and variety of the pharmacist's prescription practice and the maintenance of this equipment in top condition.

It means reference facilities in the pharmacy for use by the pharmacists and their medical and other professional associates. The practice of medicine and the other public health professions is becoming increasingly complex with the advances constantly being made in the healing arts. These reference facilities should include the standard formularies, catalogs and other literature of the leading manufacturers, textbooks and current periodicals devoted to professional subjects.

It is also desirable for the pharmacist in retail practice to become personally acquainted with physicians and other practitioners whose patients are likely to bring prescriptions to his pharmacy. This personal acquaintance is best accomplished by individual calls on these professional associates. Pharmaceutical manufacturers made this discovery long ago and have put it to good use. They also have found out that their representatives calling upon physicians and other practitioners gain the most interested and respectful hearings when they have specific information and advice to offer. This is a precept that the practicing pharmacist will do well to follow.

Other departments are to be found in retail pharmacies in which under-capacity operation is evident. The United States retail census for 1939, the latest now available, showed there to be 19,624 retail pharmacies or drugstores with soda fountains having total sales of under $20,000 each in that year. The average sales total was less than $12,000 each. Fountain sales contributed 17.7% of this total, in 1939, or scarcely more than $2100. This is an average per day of fountain receipts of under $6. It is inconceivable that a soda fountain with average receipts under $6 a day can be operated at a profit.

In contrast, in the 1939 census there were reported to be 19,828 drugstores with soda fountains in which average sales were over $20,000 each. In these drugstores the average sales were almost $50,000 each, and soda fountain sales amounted to 20.2% of this total or about $10,000. This is an average per drugstore per day of about $28 for fountain sales. It is perfectly possible in a well-managed establishment to obtain profits at a satisfactory rate from the operation of a soda fountain when the average receipts are $28 per day. The equipment required to operate a soda fountain at which daily receipts are under $6 is very little if any less elaborate than the one in which average daily receipts are $28. Certainly it cannot be contended that four or five times as much equipment is required to operate the $28 a day fountain as is needed at the $6 a day fountain. It is beyond the scope of a paper such as this, presented to a professional group, to suggest the methods to be used in correcting conditions which result from under-capacity operation of this non-professional department. It is proper to suggest, however, that the possibility of discontinuing entirely an unprofitable non-professional department may be considered.

Study Costs

As a second point in this discussion of current cost control problems, I should like to direct attention to a situation revealed by a study of costs per transaction. It is possible for any pharmacy proprietor to make such a study of the average amount of each transaction and the average costs and profits per transaction at the

present time, and to do it with a few relatively simple calculations. Such a study may be on the basis of the establishment as a whole or by individual departments.

In the prescription department the *Lilly Digest* shows that there has been some upward trend in recent years in average fees received for prescriptions. This increase is probably more the result of changes in types of medication rather than from any enlargement of customary margins. The advance which has occurred in average prescription fees has carried them in the United States to a present-day average of $1.10 as against a pre-war average of 90 cents.

Such studies as have been made of average amounts of transactions in other departments of pharmacies reveal that increases in the average size of these transactions in the war years have been just as modest as in the prescription department. When a drop comes in the pharmacist's sales volume, and such a drop has already occurred in some war boom areas, the decrease therefore will be mostly in the number of transactions rather than in the amounts of transactions. With a drop in the number of these transactions of 10%, 25% or even 50% below present-day figures the owner can estimate what the costs and profits per transaction then will be. He also can make similar calculations for increases in number of transactions. Estimates of prospective decreases involve his judgment of the costs that can be reduced or eliminated and those that will continue regardless of the volume of sales or number of transactions.

Third of the current problems of cost control in a pharmacy to which I think particular attention should be paid is the variations in margins, turnover rates, and volume of sales of various items. This is a subject that has been perennially discussed but it will bear examination again.

Entirely too much attention is ordinarily given to margin and not enough to the volume of sales nor to the rate of turnover. This is true both with respect to individual items and to departments. In drugstores that have a tobacco department its relatively low margins are frequently considered to be a source of loss or of very little profit. Actually the rate of turnover and the volume of sales obtained in this department may be such as to produce a very satisfactory income.

The sale of a product on which the gross margin is 50% of the selling price is usually looked upon with more favor by the pharmacist than one on which the gross margin is only 33⅓% of the selling price. Such a partiality is justified only if the volume and turnover possibilities of the two products are equal. It is entirely likely that for the product with the 50% margin the sales potentialities are and can be made to be no more than one one-hundredth of those of the product with the 33⅓% margin. Moreover, to obtain the 50% margin the pharmacist may have to lay in such a stock of the product as to obtain a distressingly slow rate of turnover.

It is also well to note in connection with margins the very great difference between anticipated margins and realized margins. The anticipated margin from the sale of a product may be 50% of the selling price. The actual margin realized may be only 40% because the stock lay around so long that one-sixth of the purchase became so old that it was unsalable. Similarly, the margin realized may be 40%, or even lower, instead of 50%, if the product has to be disposed of for less than the price anticipated when it was purchased.

The remedy suggested is the buying budget. It keeps purchases always in a profitable relationship to sales and does so with a minimum of effort by the pharmacy owner. The buying budget has been recognized for many years as a vital necessity in many types of retail operations. Its more widespread use by pharmacy owners is sure to be helpful.

PROPOSED AMENDMENT TO THE A. PH. A. CONSTITUTION

Proposed amendments to the Constitution of the AMERICAN PHARMACEUTICAL ASSOCIATION must be printed in the JOURNAL at least thirty days prior to the annual meeting and must be read at the first General Session of the annual meeting. They can be balloted upon at a subsequent General Session when, upon receiving affirmative votes of two-thirds of the members present, they shall become a part of the Constitution.

In accordance with the foregoing procedure the Committee on Constitution and By-Laws has submitted the following amendment to Article III of the Constitution for consideration at the Milwaukee convention on August 27.

Article III is hereby amended to read as follows: **"Article III. Officers.** The officers of the ASSOCIATION shall be a president, two vice-presidents and an honorary president, who shall be elected for a term of one year, and a secretary, a treasurer and nine councilors, who shall be elected for a term of three years. The officers shall be elected as provided in the By-Laws and shall hold office until the installation of their successors."

SECRETARY FISCHELIS REPRESENTS AMERICAN PHARMACY AT CONGRESSIONAL HEARING ON U.S. PARTICIPATION IN GLOBAL HEALTH PROGRAM

A. PH. A. VIEWS • WORLD HEALTH ORGANIZATION

"IT IS our sincere conviction that the passage of House Joint Resolution 161 will not only hasten the improvement of international relations with respect to the health of the peoples of the world but that it will profoundly influence our international relations, in general, for the better" This view of broad implications of the World Health Organization was presented at a Congressional hearing by Dr. Robert P. Fischelis in discussing pharmaceutical aspects of United States participation. The A. PH. A. Secretary appeared on behalf of the ASSOCIATION at the request of a subcommittee of the House Committee on Foreign Affairs. The subcommittee is now considering a measure authorizing membership of this country in the World Health Organization.

Endorsing the W.H.O. at the 1946 Pittsburgh meeting, A. PH. A. members recognized its importance to the peoples of the world and its significance to pharmacy. This is brought out in Secretary Fischelis' statement, at the House hearing, printed below in full:

The AMERICAN PHARMACEUTICAL ASSOCIATION, which I have the honor to represent, is the professional society of pharmacists of the United States. Its membership is made up of 15,000 individual pharmacists and pharmacy college students and through its House of Delegates it represents an additional 30,000 practitioners of pharmacy.

The House of Delegates of the AMERICAN PHARMACEUTICAL ASSOCIATION is the most representative body of pharmacists in the United States, being composed of delegates from the 48 state pharmaceutical associations. It also includes delegates from 16 local branches of the AMERICAN PHARMACEUTICAL ASSOCIATION and from 12 national pharmaceutical organizations representing hospital pharmacy, prescription pharmacies, drug manufacturers, wholesale druggists, college of pharmacy faculties, state pharmacy law enforcement officials, and other research and technical groups within the field of the profession.

The AMERICAN PHARMACEUTICAL ASSOCIATION occupies a field in American pharmacy which is comparable to the position occupied by the American Medical Association with respect to American medicine.

Our organization has participated in international conferences and congresses on pharmacy and related subjects ever since it was organized in 1852. We are members of the International Pharmaceutical Federation and representatives of our ASSOCIATION have participated in various international movements for the unification of standards for potent drugs used in the prevention and treatment of disease. Representatives of our ASSOCIATION have likewise participated in the activities of the League of Nations health organization and in various activities seeking to control international traffic in narcotic and dangerous drugs.

I had the honor to serve as an adviser to the American delegation to the International Health Conference held in New York from June 19 to July 23, 1946. Following a report of the activities of the International Health Conference to the annual convention of the AMERICAN PHARMACEUTICAL ASSOCIATION held in Pittsburgh August 25 to 30, 1946, and an address by Dr. H. VanZyle Hyde of the U. S. Public Health Service to that convention on "The World Health Organization," the AMERICAN PHARMACEUTICAL ASSOCIATION endorsed the proposed World Health Organization.

We subscribe to the principle, among others, laid down in the constitution adopted for the World Health Organization that "the health of all peoples is fundamental to the attainment of peace and security and is dependent upon the fullest cooperation of individuals and states."

At the International Health Conference, I was especially impressed with the possibility of achieving lasting peace by engendering mutual respect among the nations through the activities of the representa-

tives which they sent to discuss world health problems. It seemed throughout the deliberations of this Conference that in spite of differences in the ideologies represented there was a remarkable meeting of minds with respect to the common objective for which the Conference had been called. Under the skillful leadership of Surgeon General Thomas Parran of the U. S. Public Health Service, who was unanimously selected as the presiding officer of the Conference, debates although spirited were never acrimonious. "Health," said this group in the preamble to the Constitution which it adopted, "is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity."

Starting with this premise the representatives of the nations assembled gave evidence of the possibility of uniting world opinion on at least one of the great problems which affects the lives of individuals and of nations. I do not believe that it is an exaggeration to say that the broad concepts of international health set up in the constitution of the World Health Organization may well lead to that better understanding of all international problems which is so essential to the promotion of world peace.

Among the functions outlined for the World Health Organization is the "development, establishment and promotion of international standards with respect to food, biological, pharmaceutical and similar products." The constitution authorizes the World Health Assembly to adopt regulations concerning "standards with respect to the safety, purity and potency of biological, pharmaceutical and similar products moving in international commerce." It further authorizes the adoption of regulations concerning "advertising and labeling of biological, pharmaceutical and similar products moving in international commerce." These are essential functions and authorizations with respect to the protection of the people of all nations against the dangers which flow from lack of standards or inadequacy of standards for essential materials used in the prevention and treatment of disease.

Without international standards for drugs and medicines and without adequate control over labeling of such products the way is open to the incompetent and the unscrupulous to retard progress in the promotion of the health of the world and even to injure citizens of countries which are not adequately protected through their own regulations against the hazards of using inferior products.

The profession of pharmacy and the drug industry are vitally interested in the adoption and promotion of adequate international standards for drugs to which all of the nations can and will adhere. The adoption of such standards is a long and tedious process as has been evidenced by the activities of the health organization of the League of Nations but it is an essential and highly desirable task.

Standards for drugs and medicines in effect in the United States of America are of the highest and have been adopted by many foreign nations. Just as it has been essential and advantageous to the drug industry and to the medical profession to be assured of uniform standards for drugs throughout the various states of our union, so it will be of international advantage to bring about uniformity in the identity, quality and strength of remedial agents among the nations of the world.

We sincerely trust that the Congress of the United States will not only approve the establishment of a World Health Organization but that this establishment will be expedited as much as possible.

At the moment the Interim Commission established by the International Health Conference is functioning to preserve the progress made by the League of Nations health organization in the unification of drug standards, but this is a small group with but few nations represented on it. The time has come for an all-inclusive group such as the "World Health Assembly" set up under the Constitution of the World Health Organization to take over these responsibilities and to have the same full and free discussions of the problems affecting world health which we had last June and July when the International Conference was assembled.

Madam Chairman and members of the subcommittee, it is our sincere conviction that the passage of H. J. Res. 161 will not only hasten the improvement of international relations with respect to the health of the peoples of the world but that it will profoundly influence our international relations, in general, for the better.

———R———

TRACE OF 2,4-D IN SPRAYER MAY INJURE GARDEN PLANTS

Patrons should be cautioned to clean garden sprayers thoroughly following use of 2,4-D herbicide if the sprayers are used for other spraying work. In making this recommendation the U. S. Department of Agriculture Research Administration points out that many broad leaf plants other than weeds are so sensitive to 2,4-D that even a trace which may get into other sprays is likely to stunt or kill valuable plants.

Unless a sprayer is reserved exclusively for 2,4-D, the Department recommends the following procedure for effective cleaning of a contaminated sprayer:

Rinse out the tank with warm water; then fill it almost to the top with fresh warm water and add household ammonia, two teaspoonfuls to the quart; complete filling with warm water and stir to shake up. Spray a little through the nozzle and then let it stand for 18 hours. Then empty (away from susceptible plants) and rinse twice, each time spraying some through nozzle.

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SURGICAL SUPPLY PERIODICALS

Where can I get information concerning a surgical department?—W. S., Pennsylvania

Probably the best source of information pertinent to a surgical supply service is the trade literature in this field. Some publications of interest are: *Asta Journal*, 111 W. Washington St., Chicago, Ill., monthly, $2 per year, 25¢ per copy; *Surgical Equipment*, Ohio Chemical and Manufacturing Co., 60 E. 42nd St., New York 17, N. Y., bimonthly (reported available without charge); *Surgical Business*, 369 Lexington Ave. at 41st St., New York, monthly, $3 per year, 30¢ per copy.

For a specialized publication in the field of sterilization equipment we refer you to the *Surgical Supervisor*, American Sterilizer Co., Erie, Pa.

STERILIZING ATROPINE SOLUTIONS

What procedure can be used for sterilizing atropine sulfate solutions without impairing their efficacy?—J. M., Indiana

It is true that atropine sulfate is not very stable in aqueous solution. However, according to Schou, *et al.* (*Dansk. Tids. Farm.*, 6: 185, 1932, through *Chemical Abstracts*, 27: 5145, 1933) solutions may be sterilized at 120° C. (approximately 15 lb. pressure) as long as the *p*H is below 6. This would probably involve use of a buffer at around 5 to 6.

The Swiss Pharmacopœia states that atropine sulfate solution may be sterilized by suspending in the steam vapors from a boiling-water bath for thirty minutes. We are inclined to doubt the wisdom of such technique.

According to the *Pharmaceutical Recipe Book*, the solution is made slightly acid with 0.02 *N* sulfuric acid and sterilized by process F which is the use of aseptic technique and passing the solution through some bacteriological filter.

We are inclined to believe that not more than a thirty days' supply of such solution should be made at any one time since atropine is subject to hydrolysis. Unless you use large quantities of atropine sulfate solution it would be more convenient to prepare the solution from sterile distilled water and hypodermic tablets.

LOTION FOR "CLOSING PORES"

Would you be kind enough to furnish me with a formula for a lotion which closes the pores of the skin?—M. A., New York

It is generally conceded that no lotion will close the pores of the skin for a prolonged period. A fleeting partial closure may be achieved by using hydroalcoholic lotions containing approximately 50 to 65% alcohol. These may be fortified with small amounts of astringent substances, such as 0.5% aluminum sulfate. Occasionally, 1% zinc sulfocarbolate is used to replace aluminum sulfate. If this is done one must be aware of incompatibilities of the sulfocarbolate ion.

The product may be perfumed as desired. Perhaps the most popular odor for this kind of product is the eau-de-cologne type.

AVOIDING PRECIPITATE

I have met with great difficulty in trying to fill the following prescription:

Thiamine chloride	*16 gr.*
Sodium phenobarbital	*16 gr.*
Aromatic elixir	*1 oz.*
Elixir Betalin S, q. s. ad	*8 oz.*

Precipitation occurs shortly after addition of the thiamine chloride to a solution of the other ingredients. I have tried adding sodium phenobarbital to a solution of the other ingredients but with the same result.—L. J., California

The thiamine chloride is quite acid and will thus cause precipitation of the acid form of phenobarbital. The vehicles used do not appear to have sufficient alcohol to take up the precipitate. This may be remedied by adding a small amount of alcohol or having the physician grant permission to use some vehicle other than the Elixir Betalin S. One might suggest isoalcoholic elixir of the *N. F.* for this purpose.

SOURCE OF LANETTE WAX

Where can I get lanette wax or something like it? No one seems to have cetyl alcohol—where can I purchase this?—A. A., Florida

Lanette wax is a British proprietary and, to our knowledge, is not available as such in this country. It is said that nine parts of cetyl alcohol flakes with one part of sodium lauryl sulfate (Duponol C, du Pont) approximates the characteristics of lanette wax and can be used as a replacement.

Suppliers listed as sources of cetyl alcohol include such firms as Givaudan-Delawanna, Inc., 330 W. 42nd St., New York 18, N. Y., and E. I. du Pont de Nemours & Co., Inc., Fine Chemicals Division, Wilmington 98, Del. According to our files a replacement for lanette wax and for cetyl alcohol is available from the R. F. Revson Co., 144 W. 18th St., New York 11, N. Y.

COCCIDIODIN SKIN TEST

Would you be kind enough to supply us with the name of the manufacturer of coccidiodin skin test material, which a physician has requested?—E. B., West Virginia

This product is not available commercially but is supplied to physicians upon request by Stanford University School of Medicine, Attention: Dr. C. E. Smith, 2330 Clay Street, San Francisco 15. The coccidiodin from this source is prepared under a research program of the Army Epidemiological Board.

DIHYDROTACHYSTEROL

I would appreciate receiving information concerning the use, source of supply and commercial name for dihydrotachysterol.—S. Z., Ohio

Dihydrotachysterol is available from the Winthrop Chemical Co., 170 Varick Street, New York 13, under the name Hytakerol (A.T.10). It is supplied in capsules and in the form of a solution in oil. According to the *Modern Drug Encyclopedia* it causes a slow, sustained increase in serum calcium, largely by mobilizing calcium from the bones but also by promoting absorption from the gastrointestinal tract, and increases urinary excretion of calcium and phosphorus. The rise in serum calcium is said to occur only after about two days of treatment and is maximal in four to seven days. Unlike parathyroid hormone, dihydrotachysterol is effective orally and reportedly does not induce tolerance or refractoriness. It is used in the prevention and treatment of hypocalcemic tetany.

SUSPENSION OF BENZOCAINE

How would you suggest we make a suspension of benzocaine which the physician wants to prescribe in combination with calamine lotion? The physician says the benzocaine should be 5% strength.—G. H., Oregon

We have found the following formula to be pharmaceutically satisfactory in the laboratory:

Benzocaine	5 Gm.
Cetyl (or stearyl) alcohol	3 Gm.
Glycerin	10 Gm.
Triethanolamine	3 Gm.
Stearic acid	1 Gm.
Water	78 Gm.

Melt together the stearic acid and triethanolamine in a suitable beaker on the water bath; heat the cetyl alcohol and benzocaine and continue heating until it is entirely molten. In a separate container heat the water and the glycerin to the same temperature as the other mixture. Add the aqueous solution to the above mixture slowly with stirring; remove from the

water bath and continue stirring until an ointment-like consistency is obtained.

We have found this suspension to be quite stable. The consistency may be adjusted to meet your needs by varying the quantity of cetyl alcohol and, to a lesser extent, the quantity of stearic acid. A suitable perfume may be used if desired.

DISINFECTION OF INSTRUMENTS

Will you please send me the formula of solutions published in the following: E. Baumann, Schwerz. Med. Wochschr., No. 43, 1944; or H. Lehmann, Schwerz. Apoth. Ztg., 83, 61–62, 1945 MFWD? —J. C., Quebec

The following formulas of solutions for sterilization and conservation of syringes and needles are taken from the references you cited:

A. Heating solutions that effect sterilization by boiling the apparatus at normal pressure:

I

Sodium carbonate, crystal	20
Formaldehyde solution	1
Distilled or spigot water, *q. s. ad*	1000

II

Sodium carbonate, cryst	20
Water (distilled or plain), *q. s. ad*	1000

If desirable to render rust protective add 1% sodium nitrite.

B. Preservative solutions:

I

Formaldehyde solution	5
Alcohol, 70%, *q. s. ad*	100

II—Galli-Valerio Solution

Formaldehyde	2.5
Liquefied phenol	0.5
Sodium biborate	1.5
Distilled water, *q. s. ad*	100

The addition of 1.5% glycerin to these two solutions raises the disinfecting power.

B VITAMINS WITH IODIDE

Could you give me any information on the compatibility of iodine, iodides or organic iodine preparations with vitamins of the B complex? Our physician had in mind adding calcidin to a capsule containing thiamine HCl, riboflavin, nicotinic acid, and perhaps pantothenic acid. How about a liquid preparation such as syrup of ferrous iodide with these vitamins?—Z. S., Oregon

There appears to be nothing specific in the literature concerning this problem. However, most of the vitamins of the water-soluble group are sufficiently unstable so that the combination of the vitamin with other substances is always open to question, unless one has complete and definite evidence of its stability.

It should be pointed out that in tablets containing several of the vitamins, manufacturers often separate one vitamin from another to prevent their deteriorating effect upon each other. Certainly the dispensing of a mixture of one of these vitamins and syrup of ferrous iodide would be irrational. Thiamine, for example, is definitely unstable unless the preparation is distinctly acid, while syrup of ferrous iodide is apt to be unstable at too high an acid concentration. In addition, the salts of such heavy metals as iron and copper frequently act as catalysts for the decomposition of vitamins.

Perhaps you can suggest to the physician that the vitamin prescribed be separated from expectorants and other types of medication.

"FLEXIBLE SOLVENTS"

I was looking the other way when iso-elixir, N. F., was developed. Would you indicate in a general way some of the developmental work that went into it, and the practical applications. I plan to do a little detailing on "flexible solvents." Problems sometimes arise in which the solvent, usually elixir lactated pepsin or some therapeutically inactive vehicle, will not take water-soluble salts and alcohol-soluble substances because the alcohol-water ratio is disproportionate.

Also, I would like to know whether elixir lactated pepsin is actually the vehicle of choice among physicians, or is it a pharmaceutical catch-all. Does the physician expect any therapeutic effect from it?—H. W., Pennsylvania

You are quite right in the assumption that iso-elixir, N. F., was developed to be a "flexible solvent." This compound is based upon work done by Dr. Bernard Fantus, and some of the background will be found in THIS JOURNAL, XXII: 751, 1933. The thought of the N. F. Committee, when this preparation was admitted, was to supply a preparation that the pharmacist could use to adjust an elixir to the proper alcohol

content. If the prescriber is using one or more drugs and the pharmacist knows the approximate alcohol percentage required to keep the material in perfect solution, he then uses the correct proportion of the two elixirs as obtained from the table in the N. F.

As you suggest there is considerable work to be done through the cooperation of physicians and pharmacists to improve the appearance, taste, etc., of prescription medications. If you are interested in pursuing this matter further we suggest that you read the papers by Fantus appearing in our JOURNAL since about 1928. A very helpful book is *The Technic of Medication*, by Fantus, published by the American Medical Association, 535 N. Dearborn St., Chicago 10.

Concerning your question about compound pepsin elixir, we are inclined to believe it is being used almost exclusively as a vehicle. Modern therapy seems to indicate that pepsin has very little practical use. In fact, gastric disorders are virtually never due to a deficiency in pepsin. This preparation, however, has a very pleasant taste and good masking qualities that make it a favorite with many physicians.

PODOPHYLLIN SUSPENSION

Our 25% podophyllin in heavy mineral oil, which physicians use for venereal warts, deposits a hard lump of podophyllin on standing for about a month. This cannot be broken up by shaking or stirred with a glass rod. What can you suggest to stabilize the suspension?—L. W., New York

It has been our experience that if the podophyllin is triturated well with a mineral oil at the start, a satisfactory suspension free from hard lumps is obtained. Other modifications, such as the use of small amounts of alcohol, soap or acacia, failed to give a satisfactory suspension.

FORMULA FOR LEINER'S LOTION

One of my doctors wants me to prepare Leiner's solution, or lotion. It is said to be a vehicle for various substances used in dermatology. Could you supply the formula?—A. O., Iowa

We have been unable to locate a published reference to the formula for Leiner's lotion. A preparation is regularly dispensed under that title, however, at the University of Minnesota Hospitals, and a pharmacist from that institution has supplied the information given below:

"The formula for Leiner's lotion is as follows:

Zinc oxide	12
Talcum	12
Glycerin	12
Alcohol	8
Magma bentonite 5%	48
Distilled water, *q. s.*	120

"Magma bentonite was not included in the original formula, but we have been making it that way for a number of years."

WHITEHEAD'S VARNISH

I should appreciate it if you could send me the formula for Whitehead's varnish.—E. F., New Jersey

Pharmaceutical Recipe Book III gives the following formula:

Siam benzoin, coarsely powdered	100 Gm.
Storax	75 Gm.
Tolu balsam	50 Gm.
Iodoform	100 Gm.
Ethyl oxide, a sufficient quantity, To make	1000 cc.

Macerate the benzoin, storax and tolu balsam with 800 cc. of ethyl oxide for seven days, agitating frequently; filter, dissolve the iodoform in the filtrate and pass sufficient ethyl oxide through the filter to make the product measure 1000 cc.

COMPOUNDING PROCEDURE

The following British formulas are from Drug and Cosmetic Industry *(November, 1946):*

I

Zinc oxide	*10*
Castor oil	*53.3*
Wool alcohol	*3.2*
Oleic acid	*1*
Stearic acid	*1.25*
Lime water, To make	*100*

II

Powdered tragacanth	*1*
Denatured alcohol	*7*
Glycerin	*14*
Peanut oil	*3.5*
Tincture Benzoin	*2*
Water, To make	*100*

What do you think are the best procedures to use in compounding? What are wool alcohols and are they obtainable in this country—or perhaps something comparable?—D. S., New Jersey

Wool alcohol is a British product obtained as a by-product from the washings used in the wool industry. To our knowledge it is not available in this country, but is produced by Croda, Ltd., Rawcliffe Bridge, Goole, Yorks, England. However, we made up the first formula substituting anhydrous wool fat for the wool alcohol and obtained a satisfactory product.

The wool fat, castor oil, stearic acid and oleic acid were warmed together on a water bath until all solids were molten. The zinc oxide was then stirred into this mixture, and the lime water was added with constant stirring. The mixture was removed from the water bath and stirring was continued until the product reached approximately room temperature.

The second formula was handled much like any emulsion containing a vegetable fat and tragacanth. To the primary emulsion add most of the remaining water to be used and then the glycerin, mixing well. Add the benzoin tincture to the denatured alcohol, and add the mixture a few drops at a time to the diluted emulsion, with shaking or stirring; lastly add enough water to make 100 cc.

LIQUID HAIR DRESSING

Will you please supply me with a good formula for a cream oil type of liquid hair dressing.—R. D., New York

The following formula for a liquid hair dressing is presumably the type you have in mind. If this does not meet your needs we shall be glad to comment further.

A.

Petrolatum	7.5%
Mineral oil	37.5%
Lanolin (anhyd.)	3.0%
Arlacel C	3.0%
Beeswax (white)	2.0%

B.

Borax	0.5%
Water, *q. s. ad*	100.0%
Perfume, *q. s.*	

Preparation: Bring (A) to 75° C. Bring (B) to 75° C. Add (B) to (A) slowly with moderate but thorough agitation. Perfume at 45° C., and agitate until cold.

The foregoing emulsion becomes very thick if it is agitated until cold. When properly made, it drains nicely into the bottle, has the proper tackiness and is an excellent "all-around" hair dressing.

Arlacel C, a trade name for sorbitan sesquioleate, is a product of the Atlas Powder Co., Wilmington 99, Del.

FLUORESCEIN SOLUBLE

A local clinic has been using a solution of fluorescein to aid in detecting foreign bodies imbedded in the cornea. They do not seem to be certain of the formula. What formula and compounding procedure are customarily used?—O. G., California

There is no single formula for fluorescein solution for detecting foreign bodies in the cornea. It appears customary to use fluorescein soluble in concentrations of about 1 to 5% depending upon the wishes of the particular physician. Some pharmacists buffer the solution using a buffer of *p*H 8.6.

COAL TAR SOLUTION IN OINTMENT

In the book, "American Pharmacy," I read that solution of coal tar, N. F., can be incorporated into a cream. Will you please suggest a workable formula?—S. M., Pennsylvania

We have found the so-called Beeler Ointment Base No. 8 satisfactory for this purpose. The formula and directions are as follows:

Cetyl alcohol*	15
White wax	1
Propylene glycol**	10
Sodium lauryl sulfate*	2
Water	72

Melt the cetyl alcohol and white wax in the propylene glycol on a water bath and heat to about 65° C. Dissolve the sodium lauryl sulfate in the water and heat on the water bath to about 65° C. Slowly add the oil phase to the well-stirred water phase and continue stirring on the water bath for about ten minutes. Remove from bath and continue stirring to the point of congealing.

You might find it advisable to change the consistency of the base by increasing or decreasing some of the constituents, but if only a small quantity of the coal tar solution is to be used you will find that this base, as given, will work satisfactorily.

* Available from E. I. du Pont de Nemours, Inc., Wilmington, Del. The sodium lauryl sulfate for cosmetic use is sold under the trade name Duponol C.

** Available from Carbide and Carbon Chemicals Corp., 30 East 42nd St., New York City.

The Hospital Pharmacist

TOMORROW'S HOSPITAL PHARMACY

by FRANCIS M. RUDI*

TRENDS in the field of hospitals and hospital pharmacy offer the hospital pharmacist a challenge to meet demands of the future. We have the good fortune to represent a specialty to which these trends should bring both increased scope and significance.

Hospital administrators are becoming aware of the service that a well-equipped pharmacy manned by trained personnel can give to the hospital, to the medical staff and to the patient.

We may expect continued and growing public interest in more adequate medical care and protection against the sudden and major financial demands of a serious illness. In the further development of group hospitalization plans, whatever the type or sponsorship, there should be sufficient alertness and common interests among diverse groups to prevent undesirable regimentation.

There has been continued rapid growth of voluntary plans for hospitalization insurance sponsored by non-profit groups and of plans offered by an increasing number of industries to protect their employees, and sometimes the families of employees. This reflects a feeling of need among large groups for health insurance protection. The American Medical Association reports that nearly 5,000,000 persons are now enrolled in some type of voluntary health insurance plan. Regardless of what action may be taken by our representatives in Congress, it is logical to predict that a health insurance plan, and particularly hospitalization insurance, of some sort will be available to a majority of the citizens and accepted by an increasing number of eligible persons. As a direct result, more hospitals will be needed.

With all the evidence of the expansion of hospital service both now and in the future, it is obvious that there will be a much greater demand for hospital pharmacists. It may well be that, to a considerable extent, the future of pharmacy as a profession lies in pharmaceutical practice associated with hospitals or with clinics for group medical practice.

To meet an unpredictable but certainly growing demand for well-trained hospital pharmacists, organized pharmacy (and organized hospital pharmacy in particular) must take steps to assure that competent men and women are made available. It is recognized that a hospital pharmacist is a specialist. Consequently, training programs must be offered for those pharmacists who wish to specialize in the hospital field.

This training may be in the form of an internship in an approved hospital pharmacy under the supervision of a registered pharmacist. A year of such training could be spent in concentrated instruction and practice in the arts of professional poise, prescription compounding, bulk manufacturing, sterile solution and ampul manufacturing, purchasing, research, and administration. It has also been suggested that hospital pharmacy be considered a graduate course and that an additional year of academic training leading to a Master of Science degree in hospital pharmacy be offered in pharmacy schools. Progressive hospitals and colleges are now offering internships and graduate instruction, or jointly offering a combination of both. Thus, progress is being made, but every member of the profession should assume a part of the responsibility toward advancement of the standards of the profession.

The hospital pharmacist, as an essential member of the hospital staff, is called upon to serve in

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Presented to the American Society of Hospital Pharmacists, Pittsburgh meeting, 1946.

* Missouri Pacific Hospital, St. Louis, Mo.

many capacities in addition to the acquisition, preparation and dispensing of drugs. To the medical staff, he may serve as a consultant concerning information on drugs and pharmaceutical preparations. He must maintain a reference file in order that he will have such information readily accessible. It is not now uncommon for the physician to look to the hospital pharmacist for aid in prescription writing, choice of vehicles, dosage forms and evaluation of new types of preparations. In the future, good will and professional interdependence can increase tremendously with proper attention to this phase of the pharmacist's duties.

This will require more thorough training of the pharmacist concerning the pharmacodynamic actions of drugs and their therapeutic applications, in order that he may give sound advice. He must know the best form in which a particular drug is administered for effective absorption and action and the permissible route of administration as well as the type of solution most suited to the drug and the need. The pharmacist must cooperate with the physician in developing vehicles and medication forms suitable for administration to meet the particular needs of the physician. He must be able to give advice to the physician relative to the vehicles best suited to mask the objectionable tastes of inorganic salts, alkaloidal salts, and other compounds which are unpalatable to the patient.

More Adequate Libraries

To increase the scope and frequency of such services the pharmacist must not only be well trained but he will require a much more adequate library than that which a great many pharmacy departments now have available. Edward J. Ireland has given a review (THIS JOURNAL, May, 1946) of a few of the volumes which he considers as essential to the library of a hospital pharmacist. The author also lists a number of journals and house organs which he feels are essential to keep a pharmacist up to date in the drug field. These, along with textbooks, must be within easy reach for constant reference. Another requirement for ready reference is a file of the manufacturers' literature describing their various products.

With these tools at hand and regular reading of his library volumes, the alert hospital pharmacist will be prepared to answer most of the questions asked of him by his colleagues.

As the one who is trained in handling drugs and pharmaceutical preparations, the pharmacist is best qualified to teach such subjects as pharmaceutical arithmetic, dosage of drugs, official preparations and pharmacology to student nurses. He may also teach medical students a course in prescription writing. Another role of service, with its stimulation of interprofessional relationship, is thus available to the hospital pharmacist.

Better Control Procedures

Manufacturing has also become an important role of the hospital pharmacist. The minimal equipment necessary can often be made by the plumbing and electrical departments of the institution, or purchased at reasonable prices. Manufacturing in the hospital pharmacy adds to the services which the pharmacist may give the hospital as well as being economically desirable. If we are to develop this service properly in the future, more pharmacists should not only be trained in manufacturing techniques but be prepared to improve control procedures and the testing of finished products prepared in the pharmacy, especially those intended for injection.

Research in the hospital pharmacy gives the pharmacist an opportunity to apply his professional skill to the development of preparations of drugs which will meet the needs of the medical practitioner. Investigations, in cooperation with the medical staff, may include such determinations as the relative efficiency of two or more drugs available for the treatment of the same ailment and the respective advantages of various ointment bases. The relative absorption of different types of preparations used internally and the relative ease of administration of drugs in various dosage forms also come within the scope of this activity. Hospital pharmacy training at the graduate level should help to extend this type of service.

The pharmacy department has also become the center for the supervision of the storage, dispensing and distribution of drugs which are available for experimental use or only in limited quantities for general use. Such was the case with penicillin and streptomycin.

Trends are toward greater realization of the value to the hospital organization of an actively cooperating pharmacist. The American College of Surgeons has recommended in its "Manual of Hospital Standardization" that there should be a pharmacy committee on the staff of every hospital. Such committees, including a pharmacist member, have been established recently in Vet-

erans Administration hospitals and Army general hospitals; more and more civilian hospitals may be expected to establish such a committee. If the pharmacist is prepared to fulfill his natural role in this work, he can make an important contribution to rational drug therapy and at the same time improve his stature among members of the staff.

One of the most important functions of the pharmacy committee should be the establishment of a hospital formulary. An efficient formulary promotes rational therapeutics and prevents unnecessary duplication, waste and confusion. This, in turn, promotes economy both to the hospital and to the patient.

Contrary to a prevalent opinion of the past, there is no adequate reason a pharmacy should be a liability to the hospital organization. Efficient hospital pharmacists have proved this fact to the satisfaction of their administrations. Such evidence may be used as a working basis to approach hospital administrators who have overlooked the potentialities of the pharmacy.

No pharmacy can function properly without cooperation from all other departments. Pleasant and adequate working space, adequate equipment, and properly trained personnel are essentials. The latter factor brings to mind the fact that salaries must be sufficient to be attractive. Likewise, there must be proper remuneration for men and women with the qualifications necessary to make the department not only efficient, but economical in operation. It has been proved that it is never true economy to employ lower salaried and consequently less capable personnel.

With the numerous plans for modernization and expansion of hospitals to meet the needs of this postwar era, it is essential that the hospital pharmacist confer with the administration upon the needs for converting an inadequate pharmacy department into an efficient and modern unit.

Economic advantages of a properly conducted pharmacy have previously been mentioned, or suggested by inference, in this paper. These include the reduction of the unnecessary duplication of therapeutic agents and the centering of attention on official and less costly drugs and preparations through the establishment of a formulary. Consultative and teaching activities of the pharmacist are among the less tangible economies for the institution. Adequate control of the stocks of drugs maintained in the various departments of the hospital and in the pharmacy itself has resulted in a saving in many institutions. A program embracing these factors would result in the establishment of an efficiently operated department which would raise the standard and efficiency of the entire institution.

The practice of hospital pharmacy in the future may prove to be the most professional characterization of pharmacy. The medical profession is leaning more and more upon its companion profession, pharmacy, for the technical help and knowledge involved in the use of modern complex therapeutic agents. In view of these rejuvenating influences the future of hospital pharmaceutical practice cannot be other than bright. This presupposes that we hold fast to the initiative, integrity and professional ideals which are so vital to successful advancement of a service devoted to alleviation of human suffering.

———R———

GRADUATE STUDY PLAN SET UP IN HOSPITAL PHARMACY AT PCP

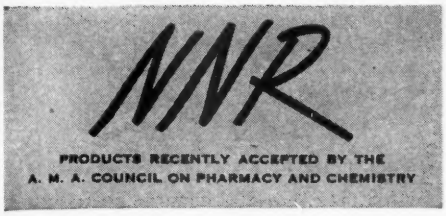
A cooperative program of graduate study and training in hospital pharmacy has been announced by the Philadelphia College of Pharmacy and Science and the Jefferson Medical College and Hospital of Philadelphia.

Upon completion of the two-year period of study, students, who must hold the B.Sc. in pharmacy, will be awarded the Master of Science degree and certified as competent to assume charge of a hospital pharmacy. Graduate studies will be taken at both the College of Pharmacy and the Medical College, and will include such courses as manufacturing pharmacy, pharmacology, biochemistry and hospital pharmacy administration. In addition, candidates will receive a well-rounded experience in the functioning of a modern hospital pharmacy.

A program was developed after a careful study of the recommendations of the Minimum Standards Committee of the American Society of Hospital Pharmacists, the Philadelphia College of Pharmacy and Science announced.

FLORIDA GROUP ACTS ON HOSPITAL PHARMACY

More adequate pharmaceutical service in hospitals was the objective of action taken at the 1947 meeting of the Florida Pharmaceutical Association. The Association will promote better understanding of the Florida law which requires licensed pharmacists to dispense and compound prescriptions in hospitals, as well as in retail pharmacies. The Florida Hospital Pharmacists Association enthusiastically endorsed the measure, according to its president, Mrs. Anna D. Thiel of Jackson Memorial Hospital.



ESTROGENIC SUBSTANCES (See New and Nonofficial Remedies, 1946, p. 443).

The following dosage form has been accepted:

E. S. MILLER LABORATORIES, INC., LOS ANGELES

Solution of Estrogens (in Oil): 1-cc. ampuls and 10-cc. and 30-cc. vials, each being available in potencies containing the equivalent of 5000 international units per cubic centimeter or 10,000 international units per cubic centimeter; 10-cc. and 30-cc. vials being available in potencies containing the equivalent of 20,000 international units per cubic centimeter of estrone in a neutral vegetable oil, with benzocaine 2 per cent. Preserved with cresol 0.5 per cent.

GLOBIN INSULIN WITH ZINC (See New and Nonofficial Remedies, 1946, p. 450).

The following dosage forms have been accepted:

E. R. SQUIBB & SONS, NEW YORK

Globin Insulin with Zinc: 10-cc. vials. Each cubic centimeter contains 40 units; 0.25 per cent phenol as preservative.

Globin Insulin with Zinc: 10-cc. vials. Each cubic centimeter contains 80 units; 0.25 per cent phenol as preservative.

EPHEDRINE SULFATE (See New and Nonofficial Remedies, 1946, p. 286).

The following dosage forms have been accepted:

E. S. MILLER LABORATORIES, INC., LOS ANGELES

Capsules Ephedrine Sulfate: 25 mg. and 50 mg.

Solution Ephedrine Sulfate: 50 mg. in 1-cc. ampuls. Preserved with chlorobutanol 0.5 per cent.

PENICILLIN (See New and Nonofficial Remedies, 1946, p. 212).

The following additional dosage form has been accepted:

SCHENLEY LABORATORIES, NEW YORK

Penicillin Sodium: 20-cc. vials containing 200,000 units or 500,000 units.

CHINIOFON (See New and Nonofficial Remedies, 1946, p. 262).

The following dosage form has been accepted:

PREMO PHARMACEUTICAL LABORATORIES, INC., NEW YORK

Chiniofon Enerels: 0.25-Gm. tablets coated with shellac.

PHENOBARBITAL (See New and Nonofficial Remedies, 1946, p. 530).

The following dosage form has been accepted:

E. S. MILLER LABORATORIES, INC., LOS ANGELES

Tablets Phenobarbital: 15 mg., 30 mg. and 100 mg.

CALCIUM LEVULINATE (See New and Nonofficial Remedies, 1946, p. 480).

The following dosage form has been accepted:

THE J. F. HARTZ COMPANY, DETROIT

Calcium Levulinate 10%: 10-cc. ampuls.

CHINIOFON (See New and Nonofficial Remedies, 1946, p. 262).

The following dosage form has been accepted:

ABBOTT LABORATORIES, NORTH CHICAGO, ILL.

Enterab Chiniofon Tablets: 0.25 Gm. Each tablet is enteric coated with a resin prepared from stearic acid, phthalic anhydride and glycerin.

U. S. trademark 353,674.

CHORIONIC GONADOTROPIN (See New and Nonofficial Remedies, 1946, p. 470).

The following dosage forms have been accepted:

LAKESIDE LABORATORIES MILWAUKEE

Choriogonin (Powder).

Choriogonin 100 International Units and 500 International Units: 1.5-cc. vials. Vials containing a powdered preparation of chorionic gonadotropin with urea and sodium phosphate which when diluted with the accompanying 1.5 cc. of sterile distilled water, containing 0.5 per cent phenol, provide a solution having a potency of 100 or 500 International Units per cubic centimeter.

Choriogonin 1000 International Units, 5000 International Units, and 10,000 International Units: 10 cc. vials. Vials containing a powdered preparation of chorionic gonadotropin with urea and sodium phosphate which when diluted with the accompanying 10 cc. of sterile distilled water, containing 0.5 per cent phenol, provide a solution having a potency of 1000, 5000 or 10,000 International Units per cubic centimeter.

U. S. trademark 419,102.

CONTRACEPTIVE JELLIES AND CREAMS (See New and Nonofficial Remedies, 1946, p. 360).

The following article has been accepted:

JULIUS SCHMID, INC., NEW YORK

Ramses Vaginal Jelly: 92 Gm. collapsible tubes. A water soluble jelly formed from carboxymethylcellulose and glycerin having a *p*H of 4, prepared from the formula:

Dodecaethylene glycol monolaurate	5.00%
Boric acid	1.00
Alcohol	5.00
Carboxymethylcellulose	2.50
Glycerin	9.00
Butyl parahydroxybenzoate	0.02
Perfume	0.01
Water to make	100.00

Packaged with a Ramses Vaginal Applicator or in refill packages containing a tube of jelly only.

U. S. trademark 306,696.

Ramses Vaginal Applicator: A transparent plastic tube threaded at the blunt intravaginal end to screw onto the tubes of Ramses Jelly to permit filling by compression. A plastic cylinder fitted inside the tube permits the operator to expel the jelly. The full capacity is 5 cc., the recommended dose.

U. S. patents 1,918,706 and 2,077,176.

PENICILLIN TROCHES (See *J. Am. Med. Assoc.*, March 22, p. 851).

The following dosage form has been accepted:

BRISTOL LABORATORIES, INC., NEW YORK

Troches Penicillin Calcium: 1000 units.

PENICILLIN (See New and Nonofficial Remedies, 1946, p. 212).

The following additional dosage forms have been accepted:

PREMO PHARMACEUTICAL LABORATORIES, INC., NEW YORK

Crystalline Penicillin Sodium: 20-cc. vials containing 100,000 units or 200,000 units.

SCHENLEY LABORATORIES, INC., LAWRENCEBURG, IND.

Penicillin Sodium: 1,000,000 units in 100-cc. vials.

CRESATIN-Sulzberger (Meta-cresylacetate) (See New and Nonofficial Remedies, 1946, p. 113).

The following additional dosage form has been accepted:

SHARP & DOHME, INC., GLENOLDEN, PA.

Cresatin Metacresylacetate (Sulzberger) Ointment: 7.1-Gm. tubes. Contains metacresylacetate 80 per cent, with benzoic acid and ethyl-cellulose.

CAROTENE (See New and Nonofficial Remedies, 1946, p. 613).

The following additional dosage form has been accepted:

WYETH INCORPORATED, PHILADELPHIA

Capsules Carotene Concentrate in Oil: Each capsule contains an amount of carotene equivalent to 5000 U. S. P. units of vitamin A.

PERTUSSIS VACCINE AND ANTITOXIN COMBINED WITH DIPHTHERIA TOXOID.—Pertussis Endotoxoid Vaccine with Diphtheria Toxoid.—A suspension of pertussis vaccine in a solution of pertussis antitoxin, made from Hemophilus pertussis phase I organisms combined with diphtheria toxoid. The bacterial suspension is prepared after the technique of Kendrick and Eldering, the bacterial solution by the Strean method, and the diphtheria toxoid is standardized in accordance with the requirements of the National Institute of Health:

Actions and Uses.—For active immunization against pertussis and diphtheria. It is not intended for treatment or for the production of immunity once exposure has taken place.

Dosage.—See under Pertussis Vaccine and Antitoxin Combined and under Diphtheria Toxoid.

AYERST, MCKENNA & HARRISON LTD., NEW YORK

Pertussis Endotoxoid-Vaccine with Diphtheria Toxoid: 10-cc. vials. Each cubic centimeter contains 25 billions of H. pertussis organisms and antigen derived from approximately 25 billion H. pertussis organisms, together with one immunizing dose of diphtheria toxoid. Preserved with Merthiolate 1:10,000.

ADR

DENTAL REMEDIES RECENTLY ACCEPTED BY A. D. A. COUNCIL ON DENTAL THERAPEUTICS

DENTIFRICES[1]

Stanley Tooth Paste: Composition: See Comfort (Brand) Tooth Paste.[2]

Manufactured by Comfort Manufacturing Company, Chicago. Distributed by STANLEY HOME PRODUCTS, INC., Westfield, Mass.

[1] *Accepted Dental Remedies*, Ed. 12, p. 156.
[2] *Accepted Dental Remedies*, Ed. 12, p. 159.

REMEDIES NOT ACCEPTABLE

STAZE DENTURE ADHERENT PASTE

During the past year, several pastes which may be used to hold dentures more firmly in the mouth have been placed on the market. The most widely advertised of these is Staze.

On January 10, 1946, a routine inquiry was directed by the Council on Dental Therapeutics to the distributors of this product. The firm replied in part as follows:

"Inasmuch as our product's patent has not yet been granted—is still 'Patent Pending'—we regret that we cannot divulge its composition of formula. However, we can state its base is Karaya Gum, and that all its ingredients are pure and harmless. (1-12-46)."

In a letter dated January 31, 1947, the firm wrote: "...our product is principally the finest grade of Karaya Gum (100 mesh, or finer) (55 per cent) and a mixture of five different oils. We use a small amount of peppermint oil U. S. P. and the following:

Erythrosin (FD&C Red #3)
Red Star Oxide Harshaw
FD&C Red #32

"In addition we use a small amount of ingredient which acts as a binder, and another one which provides for easier extrusion (slippage).

"We are in complete sympathy with your desire to protect the dental profession. And hereby agree that we will not make any change in our formula without first communicating with you."

Preliminary examination of a sample of Staze in the Bureau of Chemistry of the American Dental

Philadelphia College
OF PHARMACY AND SCIENCE
Opportunities are greater than ever for young men and women, well-trained in Pharmacy, Chemistry, Bacteriology and Biology, leading to interesting and successful careers. Graduate study in these fields and in Hospital Pharmacy offered. B.Sc., M.Sc., and D.Sc., degree courses. Write for catalog for the 1948 and 1949 sessions.
43rd Street, Kingsessing and Woodland Avenues, Philadelphia 4, Pa. Founded in 1821

Association revealed essentially a mixture of petrolatum and karaya gum. In passing, the reader may wish to know that most commercial denture adhesive powders consist principally of karaya gum. Powdered karaya gum or gum tragacanth alone may be used satisfactorily as a denture adhesive.

Staze has been advertised in the newspapers in space varying from a few square inches to a full page and in the most glowing terms. For example, "Don't let these annoying loose-plate troubles make your life miserable another day! Instead, try dentist's amazing discovery called Staze. Guaranteed to hold uppers and lowers comfortably secure all day...." "Staze not only helps prevent chafing by holding your plates securely in place, but also quickly relieves soreness by forming a s-o-o-t-h-i-n-g 'comfort cushion' under plates." "...you'll be completely thrilled with the way Staze will make your dental plates feel and fit...." "...how wonderful to be able to say goodbye to sore, irritated gums and mouth...." "The remarkable cream paste denture adhesive that has already helped over a million grateful men and women find pleasant and quick relief from the pain and misery of sore gums due to *ill-fitting dental plates*...."

Some of the recent advertising for Staze advises the patient to visit his dentist regularly for a checkup. This advice is not the most prominently or extensively featured part of the advertising.

It is common knowledge that ill-fitting artificial dentures may cause serious damage to the oral structures with which they come in contact. Denture adhesives should not be used to enable the wearer to prolong the use of such dentures, since the harm the dentures produce may thus be intensified. The only sound advice which can be given to the wearer of ill-fitting artificial dentures is to go to his dentist and get the condition corrected at the earliest possible time. Advertising which results in the long continued use of ill-fitting dental appliances is a menace to the health of the public.

Staze is unacceptable (1) because some of the advertising for the product tends to encourage its users to prolong the wearing of ill-fitting artificial dentures and (2) because of its partially secret composition.

SYRUP AMMONIUM CHLORIDE

A sedative cough expectorant being promoted for prescription use by the Joint Committee on Professional Relations of the Medical Society of New Jersey and the New Jersey Pharmaceutical Association has the following formula:

SYRUP AMMONIUM CHLORIDE COMP.

Potassium guaiacolsulfonate	2.40	Gm.
Ammonium chloride	2.00	Gm.
Antimony and potassium tartrate	0.0156	Gm.
Syrup of cherry, N. F.	30.00	cc.
Compound syrup of white pine, N. F., *q. s.*	120.00	cc.

Although no codeine is present it may be added to the prescription when desired in quantities to fill individual requirements.

OTTO MOOSBRUGGER MARKS FIFTIETH YEAR AS OWNER

This year marks a half century since A. PH. A. member Otto Moosbrugger established his pharmacy on Main Street in Dayton, O.

Mr. Moosbrugger has been secretary of the Dayton Druggists Association for the past thirty years and in 1927 was president of the Ohio State Pharmaceutical Association.

Although first employed in retail pharmacy in 1884, and licensed in 1892, he enrolled in the Philadelphia College of Pharmacy and Science to extend his education, graduating in 1895.

Scarcely a year after Mr. Moosbrugger opened his first pharmacy a flood destroyed most of his stock, and in 1913 a flood again took a heavy toll. But each time the establishment promptly recovered from the disaster.

A few years ago Mr. Moosbrugger won the trophy in the National Pharmacy Week display competition which is still proudly displayed in his pharmacy.

U.S.P. TRUSTEES INITIATE PLANS FOR U.S.P. XIV AND CONVENTION

Plans were initiated for the 1950 Pharmacopœial Convention at the last meeting of the Board of Trustees. The forthcoming Convention will be an important one at which a completely revised constitution and by-laws, which materially change the operation of the U. S. P. program, will be submitted for adoption.

The Board has approved a general plan whereby copies of U. S. P. sheet supplements, designed to permit insertion in the U. S. P., will be made available to each state board of pharmacy for distribution to every registered pharmacy in the state.

It was reported to the Board that total sales of U. S. P. XII were 58,684 copies, and early figures indicate that sales of the new U. S. P. XIII were exceeding those of the previous edition over a comparable period. Plans are already under way for publication of U. S. P. XIV, which is expected to appear before the close of the current decade.

DIBROMSALICYLALDEHYDE

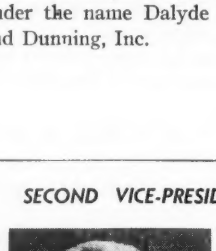
Successful use of dibromsalicylaldehyde against gram-negative infections was described at the 1947 meeting of the Society of American Bacteriologists by C. Baxter McLaughlin and John

H. Brewer. Bacteriological studies indicated that the drug is especially active against *Pseudomonas aeruginosa.*

A clinical study of 100 cases of otogenic infections by Drs. M. B. Hayes and C. F. Hall (*Trans. Am. Acad. Ophthal. Otolaryn.*, Jan.–Feb., 1947) showed that dibromsalicylaldehyde was effective against both gram-negative and fungus infections of the ear. It was found that the resistant etiological agent in chronic suppurative otitis media and external otitis was predominantly *Ps. aeruginosa*, against which the drug is reported to be particularly effective.

Dibromsalicylaldehyde has been introduced under the name Dalyde by Hynson, Westcott and Dunning, Inc.

SECOND VICE-PRESIDENT, A. PH. A.



HAROLD V. DARNELL

HAROLD V. DARNELL, second vice-president of the AMERICAN PHARMACEUTICAL ASSOCIATION, has been executive secretary of the Indiana Pharmaceutical Association and editor of the *Indiana Pharmacist* since 1939.

Prior to and during his schooling at the Purdue University School of Pharmacy, Mr. Darnell obtained retail pharmacy experience in various Indianapolis pharmacies. Following graduation he accepted a position as pharmaceutical chemist in the Food and Drug Division of the Indiana State Board of Health, and in 1937 was appointed director of the Division.

The A. PH. A. second vice-president lives in his home town of Indianapolis with his wife and three children.

In addition to membership in the AMERICAN PHARMACEUTICAL ASSOCIATION, he is a member of the National Association of Retail Druggists, National Conference of Pharmaceutical Association Secretaries, Indiana Interprofessional Health Council, Indiana Public Health Association, Indiana State Chamber of Commerce, Indiana Advisory Committee on Indigent Medical Aid, and the Indiana State Trade Executives Association of which he has been both secretary and president.

Typical Days

FROM THE SECRETARY'S DIARY FOR MAY

—1st—

IN Minneapolis to address the Minnesota Pharmaceutical Association this morning and found time to chat over the telephone with Emeritus Dean Wulling who retains a remarkably youthful spirit and is still decades ahead in his outlook on the future of pharmacy. For seven hours speeding on the "Hiawatha" to Chicago, reading reports and correspondence en route, landing on time and connecting with the B. & O. for the return trip to Washington.

—2nd—

Returned to the office in time for conversations with Treasurer Schaefer and Council Chairman Beal who had met all day with the Committee on N. F. At night to the annual dinner of the American Council on Education at the Mayflower where President Stoddard of Illinois U. and Father Walsh of Georgetown orated on "Education and Public Policy" and "What Education Can Learn from Nuremberg," respectively. The latter demonstrated how important the student of ancient and modern philosophies can become in weighing the criminal liability of promoters of certain ideologies.

—5th and 6th—

These days devoted to heavy work on the Medical Service Corps legislation, going into a huddle with Carl Durham, George Frates, Bob Swain, Art Einbeck and Dean DuMez on Monday evening. Joined them in conference with Surgeon General-designate Bliss of the Army and Surgeon General Swanson of the Navy on Tuesday morning to receive definite proposals for the activation of pharmaceutical service and more intelligent use of graduate pharmacists in the armed services. Meanwhile, entertaining a number of visitors to headquarters, among them Antenor Rangel, Jr., a past president of the Pharmaceutical Society of Brazil.

—7th to 9th—

Much of these days taken up with more conferences with the Surgeons General and their staffs to make sure that the communications mean what they say and that pharmacy in the Army and Navy will move forward rapidly when the new legislation is enacted. Also a visit from Clyde Eddy of Squibb who believes that A. PH. A. activities need dramatization by word and picture so that pharmacists everywhere may learn how much is being done for them from 2215 Constitution Avenue, Washington, D. C.

—10th and 11th—

This week end close to the desk, cleaning up ac-

cumulated chores and using the uninterrupted hours to plan for the meeting and conferences that lie ahead. Off on the "Capitol Limited" for Chicago at 5:30 p. m: on Sunday.

—12th—

All day in the Windy City with the morning devoted to the special meeting called by the A. M. A. Council on Pharmacy and Chemistry to consider what needs to be done to assure proper protection of the patient when dangerous drugs are prescribed, without scaring him to death by placing stock warning notices on prescription labels. In the afternoon to confer with President Serles at the College of Pharmacy and with Hansen, Vratny, Costello and others by telephone before departing on the "Capitol Limited" for the return trip to Washington.

—13th—

Directly from the station to the full Committee on Armed Services of the House which considered H. R. 3215 and approved it with a recommendation that it be passed. Among those present to note favorable action on this bill, which will establish Pharmacy Sections in both the Army and Navy Medical Service Corps, were Colonel Kintz, Admiral Swanson and Chairman Einbeck.

Later at the office conferring with staff members on many internal problems of organization, among them the need for space to house the expanding activities. A threefold increase in membership within two years does not occur without "growing pains." An unlucky day for F. D. A. with announcement of the decision in the Sullivan case which upsets temporarily the enforcement of the Federal Food, Drug and Cosmetic Act at state levels in some states.

—14th—

Deeply immersed with Justin Powers in the formulation of plans for N. F. development, its possible translation into Spanish, and lining up support for laboratory projects. All day the telephone brings requests from far and wide for registered pharmacists with unusual qualifications, laboratory personnel, teachers, statistical information on drug consumption in specialized categories, and aid on many other matters. At night, conferring with Chairman Horn of the Milwaukee Convention Committe by long distance telephone.

—15th—

Long conferences with Glenn Sonnedecker on JOURNAL problems and policies and how to correct the terrific lag between preparation of "copy" for the JOURNAL and its final appearance. This is a headache brought on by publication problems which are increasingly hard to meet when circulation and membership increase, while printing facilities stand still or retrogress.

A staff luncheon with Kenneth Kelly as guest as he departs on leave of absence to carry on a special industrial research program in New York. Also conferring with the House Ways and Means Committee on the Rogers' bill which seeks to place barbiturates in the class of narcotic drugs by legislative fiat—a measure which we strongly oppose.

—16th and 17th—

These days preparing for the expected absence in the coming week, with many a staff member joining in the "overtime."

—19th—

An early trip to Atlantic City where the Proprietary Association of America—trade association of what was once called the "patent medicine industry"—convened for its annual meeting. Here Associate Commissioner Crawford of the Food and Drug Administration pointed to continuing frauds in medical devices although giving the Proprietary Association credit for cleaning its house and cooperating with F. D. A. Brief exchange of greetings with Dr. Reddish, Messrs. Beardsley, Bonham, Jim Hoge, Barta and Cullen of the Proprietary Association membership and staff, and then to Philadelphia to board the "Capitol Limited" for Chicago by way of Washington. In the brief stop-over at the Capital, received the mail and messages from headquarters to be digested and acted upon en route.

—20th—

To the Continental Hotel immediately upon arrival in Chicago. Here the second Hospital Pharmacy Institute was in full swing in quarters that reminded one of the first Institute held at Ann Arbor last year, because they were so different. At noon a meeting of the Policy Committee of the newly created Division of Hospital Pharmacy with Francke, Hanson, Howard and Fischelis of the Committee in attendance and Hullerman present by invitation. A thorough discussion of the activities performed thus far and the plans for the future.

In the afternoon to visit Pat Costello and then back to the Institute to address the thirty or more Sisters who were present and could not attend an evening meeting. This group of Sisters constitutes a great asset to hospital pharmacy. They are intelligent, industrious and absorbed in their work. They want to know the whys and wherefores and they are willing to put forth great efforts to learn.

At night to the Institute once more where some of the proponents of full-time credit for hospital pharmacy experience endeavored to put us on the spot and were perhaps surprised to learn that there is no difference of opinion as to time credit to be awarded for actual and properly controlled hospital experience. The controversy arises only where ill-advised partisans attempt to justify any kind of hospital experience as adequate because other equally ill-advised partisans attempt to justify any kind of drugstore experience as adequate; and neither makes sense. Still later conferring with John Winter of our JOURNAL advertising staff who is in Chicago to sell space in both editions of the JOURNAL.

—21st—

On the 10 o'clock train to Peoria, meeting Dr. W. Paul Briggs and Commander Rees, all bound for the Illinois State Pharmaceutical Association convention. Spoke to the assembled Illinois pharmacists on national affairs and reviewed friendships with comrades of N. A. B. P. days and others, including Mes-

Efficiency can add up to *100%* by *Integrated action* ....

In this emotionally conditioned post-war period, your physicians have increasing need for a therapeutic agent to allay spastic conditions incidental to gastro-intestinal disturbances.

•

Our current advertising to physicians features a timely product, the components of which have increased efficiency by their integrated action.

LUSYN

containing

Homatropine Methylbromide

Alukalin

Phenobarbital

PROVIDING* 3 *IMPORTANT

THERAPEUTIC VALUES

ANTISPASMODIC
ANTACID ADSORBENT
SEDATIVE

for

GASTROINTESTINAL
DYSFUNCTIONS

LUSYN is available at your wholesalers in bottles of 100 TABLETS

Maltbie

Better Medicinals through Research

THE MALTBIE CHEMICAL COMPANY
NEWARK 1 • NEW JERSEY

srs. Sterling, Denton, Ucitel, and Tom Vratny who succeeded Joe Shine as secretary. At 5:15 on the way back to Chicago, learning much of Illinois geography and topography.

—22nd—

The morning session of the Hospital Pharmacy Institute interspersed with conferences with individual hospital pharmacists, including H. A. K. Whitney, founder of A. S. H. P., Anna E. Grosso of the Presbyterian Hospital, New York City, Anna D. Thiel of the Jackson Memorial Hospital, Miami, and others. In the afternoon to Milwaukee to meet with the hotel and convention committees and staffs. Following a dinner for committee chairmen, arranged by General Chairman Horn at the Plankinton, a "midnight" ride in a heavy rain to Racine, Wis., with Sylvester Dretzka, to briefly address the Racine Pharmaceutical Association at their annual dinner, which was held at Kilburn Gardens. The town clock struck two when we reentered the Schroeder Hotel at Milwaukee.

—23rd—

On the 7:45 a. m. to Chicago for the final sessions of the Hospital Pharmacy Institute and the luncheon which served also as the "commencement" program. After bidding goodbye to Dr. Hullerman, Hansen Francke, Miss Moberg and others, discussed current problems with John Dargavel and Pat Costello before embarking on the "Capitol Limited" for Washington.

—24th—

A busy Saturday at the office with faithful secretaries working overtime to get out the communications and meet the deadlines.

—25th—

Busy preparing speeches for coming meetings, notably that of the Central Atlantic States Food & Drug Officials in Philadelphia on the 29th.

—26th—

Late at the office clearing up the unfinished business and then on the 8 p. m. train for Cincinnati, spending some time on the rear platform of the last car getting an education in railroading from a conscientious brakeman in love with his work. There should be better ways for the general public to get the story of how the problems of safeguarding human life are met day after day by those engaged in tasks involving the public health and welfare.

—27th—

To the train, on arrival at Cincinnati, came Dean Klotz and John Beatty to start us off on a busy day visiting, in turn, the College of Pharmacy, the Lloyd Library, the city health officials, the Merrell Laboratories and the building to which the College of Pharmacy expects to move ere long. All this interspersed with luncheon at the Sinton where many pharmaceutical celebrities were gathered.

In the evening at dinner with a fine group of hospital pharmacists from Cincinnati and environs. The usual session with representatives of the press and

then the big event of the evening—addressing a great gathering of Cincinnati and nearby Kentucky pharmacists who came to join forces in building a strong professional group centered around the College of Pharmacy, taking in general practitioners as well as specialists. Entertainment by WLW artists and a buffet closed a delightful evening.

—28th—

This day a pleasant scenic trip in great comfort on the new "Cincinnatian" bound for Washington via B & O. Ample opportunity for constructive thinking and recording ideas for future use. Still time to review the mail on arrival in Washington and commune with the dictaphone for an hour or two before calling it a day.

—29th—

Early in the morning to Philadelphia to address the Central Atlantic States Food and Drug Officials Association on "The Imperative Need for Uniform Drug Legislation," stressing the growing importance of state legislation in the light of adverse high court decisions on certain sections of the Federal Food, Drug and Cosmetic Act. Renewing acquaintance with many a faithful public servant, grown old at the task of enforcing state and Federal laws in the health field.

At lunch with Wilbur Powers, secretary of the N. J. Board of Pharmacy, and then to station WFIL for a recording and a brief visit with past A. PH. A. Honorary President J. C. Peacock and Mrs. Peacock, two splendid pharmacists who have contributed much in their time to improve the profession and serve the public acceptably and whose encouragement to this pharmacist in the beginning of his career will always be remembered with grateful appreciation.

Next to the annual dinner of the Food and Drug Officials at the Ben Franklin Hotel where Dr. Fort presided and told stories galore, and then a visit with Ambrose Hunsberger, veteran Philadelphia pharmacist, who pioneered in exclusive prescription practice when such departure from current procedure was considered risky business; a towering oak in the forest of pharmacy whose common sense and erudition have been great assets to pharmacy in Philadelphia.

—30th—

Leaving Philadelphia on this Memorial Day by auto for Red Bank, traveling through many an old New Jersey town and stopping particularly at Mt. Holly to visit briefly with Alexander Dubell, one of New Jersey pharmacy's noblemen; a tower of strength to the folks in his town for they know him not only as its leading pharmacist but also as bank president, head of several local manufacturing and farming enterprises and active promoter of all that stands for civic improvement and progress.

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MEDICAL BIOLOGY (from page 361)

tion, by relief of glossitis, cessation of diarrhea, and by chemical changes interpreted as indicating improved absorption of glucose and of fat-soluble substances from the alimentary tract.

These chemical evidences are (1) a rapid return toward normal of the fat glucose tolerance curves characteristic of sprue; (2) a more gradual return toward normal of the vitamin A and tocopherol tolerance curves; (3) a rise in serum carotene and tocopherol levels; (4) a decrease in the prothrombin time. Less extensive data indicate that the stool fat content decreases and that the abnormal gastrointestinal pattern on X-ray returns slowly toward a normal pattern.

The evidence is considered compatible with the concept that the vitamin M group is of importance in maintaining normal gastrointestinal absorption. The mechanism of this action is now being studied.

INHIBITION OF ENZYMES BY IONIZING RADIATION

The investigation on the effect of ionizing radiations (X-rays, and alpha, beta, gamma radiations produced during the disintegration of atoms) was started during the war by the Metallurgical Laboratory of the University of Chicago and is continued now at the Argonne National Laboratory under the direction of Dr. E. S. G. Barron and his co-workers. This work, discussed at the meeting by Dr. Barron, is designed to elucidate the nature of radiation sickness and to devise proper and logical treatment. It may also have other therapeutic significance.

Many proteins which have enzyme properties require the presence of sulfhydryl groups. When these sulfhydryl groups are destroyed either by oxidation or by combination with heavy metals there is a great disturbance of tissue metabolism. In fact, the toxic effects of lewisite and chloropicrin, of arsenic, mercury, etc., are due to inhibition of these sylfyhdryl enzymes.

It has been found now that ionizing radiations (X-rays, alpha, beta particles and gamma radiations) inhibit these sulfhydryl enzymes through oxidation of the sulfhydryl groups by the hydroxyl and HO_2 radicals and peroxide produced during the decomposition of water by the radiation.

Dr. Barron believes that this action is of great importance in the study of the mode of action of small amounts of radiation, such as that used in the treatment of cancer or that obtained in cosmic rays The processes of mitosis and nucleoprotein synthesis, so susceptible to the action of small amounts of radiation, must be performed by sulfhydryl enzymes which would be inhibited by these radiations. If this hypothesis is verified it would be possible to protect the enzymes against the oxidizing action of the products of radiation.

TULAREMIA IMMUNIZATION OF WHITE MICE

Coriell, Downs and Klapp of the Department of Bacteriology at the University of Kansas immunized mice against tularemia. Though the level of immunity following vaccination was never high, it protected 35% of the animals from four to five lethal doses and delayed death in others, they reported. A number of vaccinated mice, after recovery, harbored a latent infection which was no protection against reinfection.

ADEQUATE DIET—NOT ONLY WHAT BUT HOW

"We are not only what we eat with respect to the building up of bodily tissues from food constituents; we are also affected by how we eat, at least as far as the use of amino acids is concerned," Dr. P. R. Cannon of the University of Chicago said in an address on "The Influence of Time of Ingestion of Essential Amino Acids upon Utilization in Tissue-Synthesis." Dr. Cannon reported on experiments with starved rats which had lost weight and were suffering from protein deficiency.

When these animals were fed diets adequate in calories, vitamins and minerals but containing only the "ten essential amino acids," they recovered lost weight rapidly. If they were fed similar diets in which the ten essential amino acids were not given at the same time but at alternating intervals—so that at one time five were eaten and an hour later, the other five—the animals failed to recover lost weight.

"All ten essential amino acids must be eaten together, if the starved rats are to rebuild their wasted tissues. The experiments demonstrate, therefore, that the tissues require an ample supply of all these amino acids for their most efficient utilization and that these amino acids are not stored for even short intervals but must be resupplied at each meal," Dr. Cannon pointed out in his report.

MESCALINE AIDS STUDY OF SCHIZOPHRENIA

Use of the alkaloid "mescaline" may pave the way to a better understanding of mental disease, particularly of the hallucinations which accompany schizophrenia. This information was presented to the American Society for Pharmacology

and Experimental Therapeutics by Kurt Salomon, Thomas Thale and Beverly Wescott Gabrio of the Washington University Medical School, St. Louis, Mo.

The schizophrenic lives in a world of his own which is not accessible to the normal mind, and suffers from hallucinations. A complete understanding of this condition is not yet known.

The investigators were able to produce visual hallucinations experimentally, expecially in a neurotic subject, by giving mescaline (3,4,5-trimethoxyphenylethylamine) to patients by mouth.

The workers believe that mescaline acts on the eye apparatus to decrease its ability to see color, and that it also acts on the brain with respect to recognition and imagery.

Mescaline may be an important tool for an understanding of hallucinations because, with this chemical, hallucinations may be produced at will in a subject.

PRISCOL FOR CIRCULATORY DEFICIENCY

A new drug, Priscol, which can be used for the treatment of circulation disorders and can be taken orally was discussed before the American Society for Pharmacology and Experimental Therapeutics.

Drs. J. P. Hendrix, M. J. Reardon and F. A. Marzoni of Duke University revealed that Priscol can be used in the treatment of diseases in which circulation is poor, such as Raynaud's disease.

The physicians found that use of the drug resulted in a marked warming of the hands and feet of patients with poor circulation and indicated that Priscol had a direct relaxing effect on the arteries. Experiments showed that the drug blocks the vasoconstrictor effect of adrenalin and thus enables the heart to pump more blood through the vessels.

Priscol, which is benzyl-imidazoline hydrochloride, is related to histamine. The drug has been used in Europe but has received little attention in the United States until recently.

CHEMICAL STUDIES OF FUMIGACIN

As early as 1912 Vandremer in France claimed that the amber fluid surrounding the green mold, *Aspergillus fumagatus*, was effective in the treatment of tuberculosis. Only recently have chemists set out to determine the nature of the antibiotic substances occurring in the amber fluid. Three bacteriologically active materials, fumigatin, spinulosis and gliotoxin, have been isolated and their chemical structures established, but they do not appear to be the principal active agent. A fourth material, fumigacin, has been isolated, but in very small amounts, so that little is known of this substance.

The Office of Scientific Research and Development was intensely interested in antibiotics and the St. Louis University School of Medicine was one of the institutions selected to work on this project, including investigation of fumigacin. The task of producing fumigacin in order to determine the structure and activity of this material was begun in 1943. More than 1500 gallons of the amber fluid from this green mold were produced and processed, yielding about an ounce of pure crystalline fumigacin. At the meeting of the Federation, results of the chemical study of this 32-carbon-atom compound were reported by Dr. W. H. Elliott and his associates. It is hoped that this new information will aid in completing the determination of the chemical structure of fumigacin and in the development of a new class of antibacterial compounds.

It was found that fumigacin is relatively nontoxic, gives some protection to mice infected with pneumococcus and is active against a number of bacteria, including some that are resistant to penicillin. While it inhibits the growth of the tubercle bacillus *in vitro*, this activity has not yet been demonstrated in animals.

HEPATO-RENAL FACTORS IN CIRCULATORY HOMEOSTASIS

In previously reported studies on experimental shock by Shorr, Zweifach and Furchgott of the Cornell University Medical College two hitherto undescribed principles were found to play an important, and probably a crucial role in the response of the circulation to experimental hemorrhagic and traumatic shock. The first of these principles was formed by the kidney as a result of the oxygen lack which occurs in shock. This kidney vaso-excitor principle led to changes in the peripheral circulation of such a sort as to help to compensate for the loss of circulating blood. The reduced blood volume of the shocked animal was kept out of the large capillary bed and sent directly back to the veins and to the heart as a result of the changes brought about by the kidney vaso-excitor principle.

If the shock was profound and unrelieved by transfusions and the blood pressure progressively fell, the kidney principle ceased to appear in the blood stream. Instead, there appeared in increasing amounts a principle arising from the liver, also a result of anoxia. This principle had an opposite action on the peripheral blood vessels. It served to open up the vast capillary bed into which the reduced blood volume now flowed and

became stagnant. Once this liver principle dominated the vascular bed transfusions became ineffective in relieving the state of shock.

This liver principle has now been purified to some degree and concentrated manyfold, Drs. A. Mazur and E. Shorr of Cornell reported. Some of its chemical characteristics have been studied by Mazur and Shorr. The partially purified liver vaso-depressor material is protein in nature. Its chemical constitution indicates a close relationship to the globins, a class of proteins of which the hemoglobins are an example. It also contains significant amounts of iron which appears to be essential for its physiological activity. This iron, however, does not exist in the form in which it exists in hemoglobin.

The purified fraction exerts physiological effects on the blood vessels similar in every respect to that which is induced by the serum of animals in the irreversible stage of shock. Amounts necessary to induce these reactions in a rat are extremely small. The physiological activity of this protein is characterized by its ability to depress the action of adrenalin when applied directly to the blood vessel.

ROLE OF NERVOUS SYSTEM IN RENAL HYPERTENSION

Some hypertensive patients respond to treatment in a manner indicating that the nervous system is the cause of hypertension. Although renal hypertension produced in animals experimentally is known to be maintained by a chemical secreted in the kidney, it has been reported that rats who have had renal hypertension for a long period of time also respond, when tested, in a manner indicating that the nervous system has taken over the maintenance of the high blood pressure. Drs. W. G. Moss and G. E. Wakerlin of the University of Illinois studied this problem concerning the role of the nervous system in the late stage of renal hypertension in the dog and included parallel observations on dogs with experimentally induced neurogenic hypertension, in which it is known that the nervous system is the causative factor.

When persons or animals are anesthetized the blood pressure is usually somewhat decreased. This is considered to be because the anesthesia decreases the ability of the nervous system to maintain the previous blood pressure level. Dogs in early and late stages of renal hypertension did not show any consistent differences from normal dogs in the blood pressure changes induced by anesthesia. Dogs with neurogenic hypertension had greater reductions in blood pressure when they were anesthetized.

Several procedures, such as placing cold packs on the skin, which are known to effect a rise in the blood pressure by action on the nervous system, were used and similar rises were produced in normal and hypertensive animals.

These dogs were also given several kinds of drugs which decrease or eliminate the nervous system's control of blood pressure by blocking sympathetic vasoconstriction. These drugs caused similar changes in normal dogs and those with renal hypertension in both the early and the late stages, but the responses were much greater in the dogs with neurogenic hypertension.

When one (*a*) decreases the general activity of the nervous system, (*b*) tests the responsiveness of the nervous system, or (*c*) blocks the effect of the nervous system on the blood vessels no differences are found between normal dogs and those with renal hypertension in the early or late stages. Dogs with neurogenic hypertension do show considerable differences from normal dogs under these circumstances. It was therefore concluded by Dr. Moss and his associates that the nervous system can only be of very minor importance in the maintenace of renal hypertension in the dog in either early or late stages.

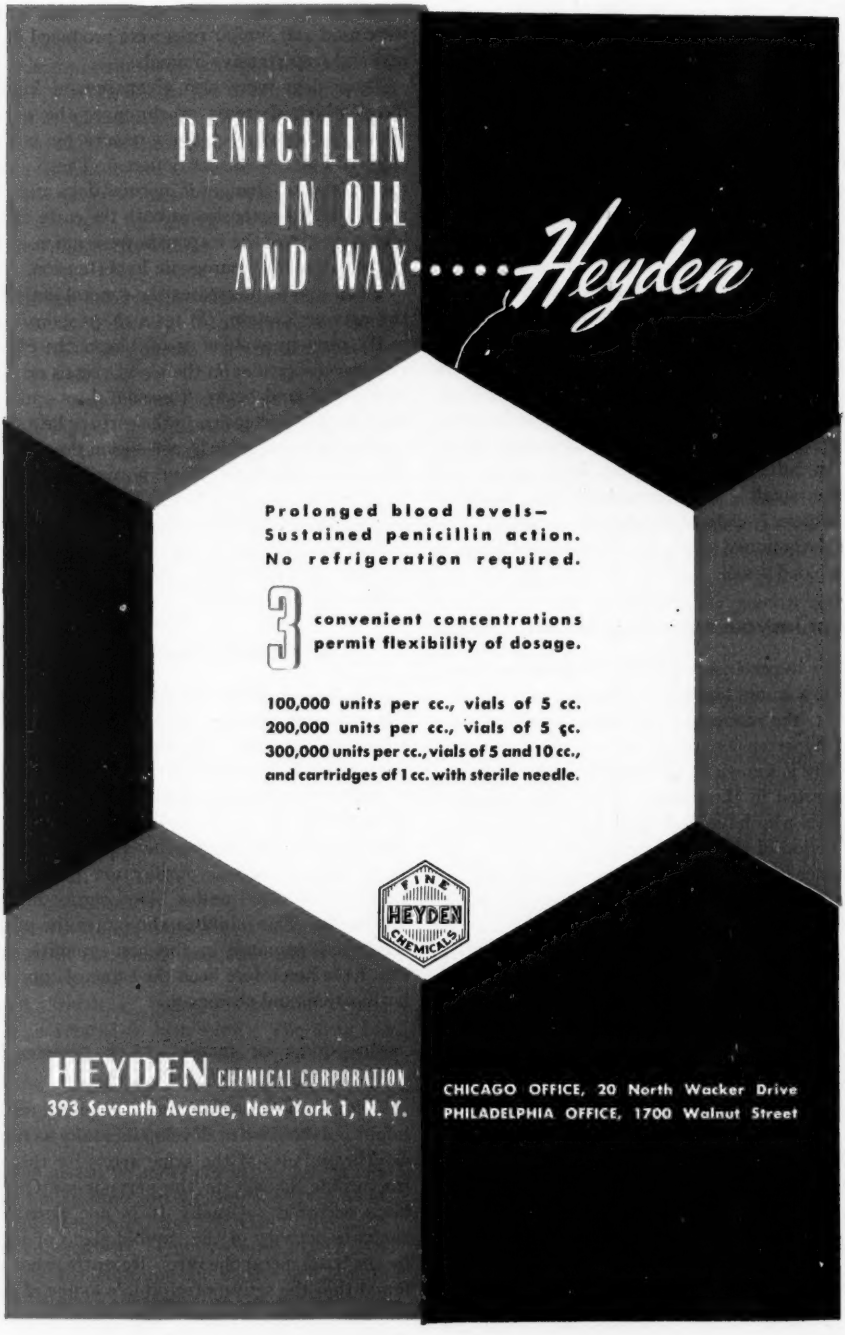
FALSE POSITIVE SYPHILIS TEST AVOIDED

A means of differentiating accurately a false positive blood test for syphilis has been found by Dr. Hans Neurath and his associates at Duke University School of Medicine. The method permits recognition of the non-syphilitic origin of more than 95% of the false positive tests of the type resulting from other infectious disease. It involves a partial purification of the antibody in the blood and a blood serum inhibitor substance. This inhibitor eliminates the positive serological response in the non-syphilitic cases, that have heretofore been the cause of concern to both patient and physician.

RECOGNITION OF CRETINISM AND CONTROL OF MEDICATION

Cretinism is sometimes not recognized until an infant fails to grow or develop mentally as rapidly as other infants of the same age. By this time irrevocable damage to the nervous system may have occurred. Usually it is not possible to evaluate activity of the thyroid gland of infants by the basal metabolic rate. Recently it has been found that the serum precipitable iodine of cretin children is distinctly lower than that of non-cretin children.

Early evaluation of the serum iodine permits diagnosis to be made and treatment to be insti-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tuted before irrevocable damage has occurred. At present estimation of serum iodine is a difficult clinical chemical test, and requires about two tablespoonfuls of blood. In discussing this method at the meeting, Dr. Evelyn B. Man of the Yale University Medical School reported that an attempt is being made to simplify the method and to decrease the quantity of blood necessary for the test.

TESTING ANTI-ANEMIA POTENCY IN LABORATORY

The problem of testing liver extracts for their anti-anemia potency in the laboratory has been the stumbling block in the efforts made to isolate the active material which is effective in the treatment of human pernicious anemia. At present the only means available for testing such liver extracts is upon human pernicious anemia patients.

In the Department of Biochemistry at the University of Vermont College of Medicine, Dr. Edwin E. Hays and his assistants, working on a research grant from the Armour Laboratories of Chicago, have developed a method for testing the effect of various red blood cell producing agents in the laboratory. Studies made in this laboratory indicate that the red blood cell maturing substance found in normal human blood plasma is absent in the blood of the pernicious anemia patient. Furthermore it appears that the material found in liver extracts, yeast extracts, and normal blood plasma acts in the same general manner upon young undeveloped red blood cells by maturing them to the more adult type of red cell found in the circulating blood.

Folic acid, now being used clinically in macrocytic anemias, does not appear to act in this manner directly upon the immature blood cells.

It is hoped that this method will aid in the isolation of the active material from liver extracts and also shed some light upon the interrelationships between it and the other known red cell stimulating substances.

CONVERSION OF ACUTE INTO CHRONIC LEUKEMIA

A method by which life expectancy in acute leukemia may be increased was announced by Dr. Raphael Isaacs of Michael Reese Hospital, Chicago. Feeding a solution of tyrosinase, the ferment responsible for some pigmentation of the skin, he was able to convert acute leukemia to the chronic form in the six cases treated. Chronic leukemia carries a much longer period of survival. The increased skin pigmentation in leukemia successfully treated with X-ray or arsenic suggested the use of tyrosinase.

EFFECT OF PODOPHYLLIN ON TUMORS

Experiments with podophyllin on tumorous mice resulted in a definite decrease in the growth of tumors, Morris Belkin, of the department of pharmacology of the Medical College of South Carolina, reported. He spoke before the pharmacology and experimental therapeutics section of the Federation of American Societies for Experimental Biology.

Belkin's experiments with podophyllin indicate that the substance not only appears to decrease tumor growth, but also damages tumor cells. Its effect, he said, is similar to that of colchicine in arresting mitosis.

In these experiments subcutaneous injections of podophyllin in oil were given every three or four days to pure strain mice with transplanted tissue and breast tumors.

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FIRMS CEASE MISLEADING CLAIMS FOR PANTOCAL AND INSECTICIDES

A stipulation to cease and desist from misrepresentation of Pantocal, a vitamin preparation, has been accepted from the American Dietaids Co. by the Federal Trade Commission. The firm and its advertising agency agreed to stop representing through use of the phrase "anti-gray-hair vitamin" as descriptive of the product, that Pantocal will prevent or end gray hair, or restore the original natural color to the hair.

It was also agreed that they would discontinue representations that it has been established that 88% or any other definitely stated percentage of those taking calcium pantothenate have had the natural hair color restored; and that the product makes fingernails less brittle, increases resistance to freckling or sunburning or improves the general health of the skin.

Two stipulations to cease and desist misrepresentation of the insecticide "Hot Food Residual Spray" and "Hot Foot Insect-Spray" (American Chemical Co.), and "Aerosect Wonder Insecticide (Pennsylvania Engineering Co.) have also been accepted by the FTC.

The makers of "Hot Foot" insecticides agreed to stop representing that these products paralyze all common insects at once, or afford a 100% kill of all insects, or that DDT kills all insects.

The maker of "Aerosect" will discontinue representing that one bomb will effectively eradicate non-flying insects including fleas, silver fish, ants, roaches, bedbugs and moth larvae from a space comparable to 100 average sized rooms.

A. Ph. A. Branches

LOCAL BRANCHES

Over 250 pharmacists of western Pennsylvania attended the pharmacy conference May 5th sponsored by the **Pittsburgh Branch.** The pharmacists heard talks by Dr. Melvin W. Green, director of the AMERICAN PHARMACEUTICAL ASSOCIATION Laboratory; Don E. Francke, chief pharmacist at University Hospital, University of Michigan; and Dr. Austin Smith, secretary of the Council on Pharmacy and Chemistry of the American Medical Association.

The conference began with a trip through the Mellon Institute and the showing of a motion picture depicting modern trends in pharmacy and medicine.

The afternoon session was opened by Dr. E. C. Reif, dean of the University of Pittsburgh School of Pharmacy and president of the Pittsburgh Branch, who then turned the meeting over to Dr. Hugh C. Muldoon, dean of the Duquesne University School of Pharmacy, who introduced the speakers.

Dr. Green of the A. PH. A. staff spoke in the afternoon on "Drug Standards and N. F. VIII." He emphasized the importance of the U. S. P. and N. F. as legal standards, pointing out their significance to the practicing pharmacist in his daily work. He described investigations conducted by the A. PH. A. Laboratory in Washington, which is one of the few laboratories in the world dedicated to official drug standardization. "Pharmacists can point with pride," Dr. Green said, "to the fact that through their membership in the A. PH. A. they are supporting this important work which constitutes a major contribution to public health."

Mr. Francke, the second afternoon speaker, presented an illustrated address on newer types of prescriptions, emphasizing such drugs as penicillin, thiouracil, the sulfonamides, and hydrophylic ointments.

At the close of the afternoon session, the group moved to the University of Pittsburgh where a banquet was held. The branch secretary, Stephen Wilson, reports that this part of the program was unique in that the banquet was totally without speeches! At the evening session, Dr. Austin Smith addressed the group on "Medical Watchdogs." He used the term to refer to those agencies which must keep abreast of advances in therapy and must advise, coordinate, and promote efforts to direct new discoveries into proper channels for the benefit of public health and welfare, and to avoid their exploitation.

The strong conference program reported by the Pittsburgh Branch represents a further development of the conference or seminar projects through which various A. PH. A. branches are providing valuable service to practicing pharmacists in their respective areas.

The **North Pacific Branch** has installed the following officers for the coming year: George E. Crossen, president; Ernst T. Stuhr, first vice-president; J. Fred Meek, second vice-president; and Fred A. Geue, secretary-treasurer. A highlight of the April seminar program, previously reported, was the presentation to Dean Crossen of a check for $5000 from a fund raised by the A. PH. A. Branch for the purchase of specialized equipment for the School of Pharmacy at Oregon State College. The presentation was made by Retiring President Harvey J. Donnell and Campaign Chairman Walter F. Rhodes.

At a special May meeting of the **Northern California Branch,** members had an opportunity to hear an address on trends and potentialities in pharmacy by Dr. E. C. Elliott, the director of the Pharmaceutical Survey.

"You and the State Welfare" was the subject of an address by Frazier Reams, former state welfare director, who was the principal speaker at the dinner meeting in May held by the **Northwestern Ohio Branch.** President O'Donnell presented a résumé of the activities and growth of the A. PH. A. Branch during the past year. The dinner was followed by a dance in the ballroom of the Commodore Perry Hotel. An invitation to the dinner dance of the branch was extended to all pharmacists and members of pharmaceutical organizations in Northwestern Ohio.

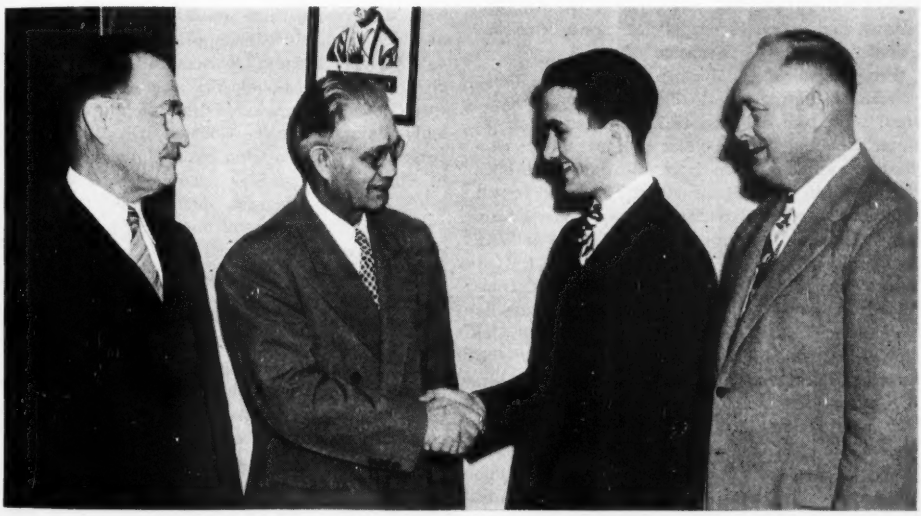
"Pharmacy—What's Wrong with It?" This was the difficult subject discussed by Victor I. Gotbaum, student at the Brooklyn College of Pharmacy, in a program presented by members of student branches in the New York metropolitan area at the May meeting of the **New York Branch.** Richard E. Schenker, also of Brooklyn College, discussed "Pharmacy—Business or Profession?" Both papers were commented upon by Marvin Ehrenberg, president of the Columbia University Student Branch, Miss Grace Phillips, secretary of the Fordham University Student Branch, and Armando D. De Crescenzo, president of the Rutgers University Student Branch, and Edward Chudnofsky, president of the St. Johns University student branch. The program stimulated prolonged discussion from the floor.

Irving Rubin, co-chairman of the program committee, introduced William deNeergaard, the presiding officer for the student portion of the program.

Earlier in the meeting, the New York Branch members heard reports from various committee chairmen.

At the first formal meeting of the newly organized **Southeastern Wisconsin Branch,** held jointly with the Milwaukee County Pharmacists Association, Dr. Robert P. Fischelis, secretary of the AMERICAN PHARMACEUTICAL ASSOCIATION, spoke on the modern needs of medical care and the pharmacist's responsibility. He said that health can no longer be considered the mere absence of disease or infirmity, pointing out that "the modern definition of health involves the complete mental, physical and social well-being of the individual." Pharmacists were told that no other group is in a better position to provide health information to the public and Dr. Fischelis urged that they take advantage of their position to promote better health in the community. Officers of the branch, who provided active leadership in organizing the group, are: Sylvester H. Dretzka, president; Walter Koepke, vice-president; Frank Kuskowski, treasurer; and Emil C. Horn, secretary. The Southeastern Wisconsin Branch is currently engaged in developing plans for welcoming the parent organization to Milwaukee for the annual meeting during the week of August 24th.

STUDENTS HOLD MINIATURE CONVENTION



AT THE MINIATURE CONVENTION staged by the Ohio State University student branch, President Earl R. Serles of the American Pharmaceutical Association congratulates President Richard Solove of the A. Ph. A. student branch. Shown left to right are Dr. B. V. Christensen, dean of the College of Pharmacy; Dr. Serles; Mr. Solove; and Dr. L. David Hiner, faculty adviser to the student branch.

CONSTRUCTIVE training and an interesting experience for tomorrow's pharmacists was provided by the "miniature convention" of the A. PH. A. student branch at Ohio State University, held May 23. Here is an idea for student branches that may well be adopted as a project by A. PH. A.'s associate members at other colleges.

Plans for the sessions had been under way at Ohio State for the past year. Undergraduate investigations, upon which some of the papers were based, had been conducted over a period of months prior to the meeting as part of the students' academic schedule.

Classes were adjourned the day of the "convention" so that all students at the college would be free to attend. The program was broken down into section meetings patterned after those held at the annual meeting of the parent ASSOCIATION. The Scientific Section meeting got under way at 9 a. m. with students Earl E. Smith and Roland B. Stotter serving as chairman and co-chairman, respectively. Alvin E. Gardner, junior student, presented a discussion on new drug development based on the special March issue of THIS JOURNAL devoted to the subject. This was followed by a paper on "Influenza Virus Preparation and Use" by Virginia

Butterfield, Anna R. Defenbaugh and Patsy Lohmire.

A report by Peggy O'Neil, Jeanette Tarney and Charles Majorich was based on an undergraduate research project in pharmacognosy to determine (1) the concentration of sulfuric acid that would best react with calcium oxalate crystals to form sulfate crystals; (2) whether the same concentration of acid would react with oxalate crystals of various types; and (3) whether the same concentration of acid would react to a like degree with oxalate crystals from different plant sources.

Unusual undergraduate investigation was reported in the paper of Earl E. Smith on "Variations in Medicinal Activity of the Oleoresins and Crude Filicin from Green and Brown Male Fern." The wide variation in the internal color of stipes of aspidium was the basis for the experiments.

Since the student investigator found some disagreement in the literature as to exactly what makes up the active constituent in the oleoresin, biological assays were attempted, using round worms, tape worms, and (when the supply of tape worms was exhausted) finally earth worms.

From chemical and biological tests, Mr. Smith concluded that steam distillation of an oleoresin from a mixture of green and brown aspidium reduces the activity of the oleoresin. A tentative conclusion was also drawn from the data that both the oleoresin and the crude filicin from brown aspidium are more active than that from green drug. Crude filicin also appeared to have a lower activity than oleoresin.

The Scientific Section program was completed by a comparative report on "The Chemically Pure Principles of Digitalis" by Roland B. Stotter and a discussion by George M. McCann of "Uniform Legislation for Control of Barbiturates." Mr. McCann presented a condensed review of studies of the subject that had been made by the parent ASSOCIATION. He then related this information to efforts to obtain new barbiturate legislation in Ohio and presented current views on the subject obtained from interested Ohio legislators.

Next on the program was the session of the Hospital Pharmacy Section led by Chairman Dolores Kapusta and Co-chairman Jeanette C. Tarney. Miss Kapusta and Miss Tarney presented a two-part discussion of "The Progress and Development of Hospital Pharmacy."

Practical Pharmacy Section

The afternoon sessions got under way with the meeting of the Practical Pharmacy Section, with Leo Price serving as chairman and Wanda Griffith as co-chairman. Donald Stevenson presented a paper on the preparation of washable ointment bases, and William Moore discussed "The Preparation of Toothpastes." A general discussion of "Modern Arrangement of a Drugstore" was led by Robert Ohly.

In the Historical Section, the following papers were presented: "The Early History of Pharmacy" by Garcon Weiss; "Early American Pharmacy" by Mary E. Poffanbarger, who also served as section chairman; and "The History of Pharmacy at Ohio State University" by Virginia Mayhugh.

At each section meeting the presentation of a paper was followed by a question and answer period.

The afternoon program was concluded with a panel discussion on "The Aims and Objectives of Graduate Study in Pharmacy," by William Roberts, Anthony Ridolfo, Joe Zopotocky, Melvin Chambers, Karl Kelly, Willis Brewer, George Curts and I. A. Abdel-Latif. Dr. Lloyd E. Harris of the college faculty served as moderator of the discussion, which brought many questions from the floor.

Convention Banquet

In the evening there was a convention banquet at which Dr. Earl R. Serles, president of the AMERICAN PHARMACEUTICAL ASSOCIATION, was the principal speaker. Also on the after-dinner program was Glenn Sonnedecker, editor of THIS JOURNAL and an alumnus of the College. Dr. B. V. Christensen, dean of the Ohio State University College of Pharmacy, served as toastmaster for the first portion of the program, during which scholastic awards and selection of members for honorary societies were announced. Dean Christensen then turned the program over to Richard Solove, energetic president of the A. PH. A. Student Branch.

Gifts were presented by the students to Dr. L. David Hiner, faculty adviser to the Branch, and to Dr. J. E. Orr, associate adviser, in recognition of their service. Drs. Hiner and Orr are leaving the Ohio State faculty to establish the newly authorized pharmacy college at the University of Utah, with Dr. Hiner as dean. Honorary pins, the "Ohio State Branch Spurs," were presented to President Serles, Dean Christensen, Dr. Hiner, and Mr. Sonnedecker.

Before the meeting adjourned for the dance which followed, A. PH. A. President Serles installed the new student branch officers. These are: Leo Price, president; Robert Hock, president-elect; Donald Baker, vice-president; Nancy Bartlett, secretary; and Robert Ohly, treasurer.

The enthusiasm that branch members and student body brought to the miniature convention seemed to assure that it would be further developed in the future as an annual event. An educator visiting the College expressed the view that the content and presentation of papers were, in general, on a level comparable to that observed at professional meetings of practitioners of the health professions.

The Ohio State A. PH. A. Student Branch is to be commended for the planning and execution of an unusual project.

New A. Ph. A. Members

The American Pharmaceutical Association extends a cordial welcome to the men and women joining in its expanded program on behalf of the profession. Those accepted for active membership during the month preceding May 20 are listed below.

NEW LIFE MEMBER

Brody, Bernard, Chicago, Ill.

ARKANSAS

Davis, Clinton A., Osceola

CALIFORNIA

Amemiya, George H., San Francisco
Brocato, John J., San Francisco
Capra, Lewis, Sacramento
Caprille, Nathan A., San Francisco
Conrad, Neil J., Sacramento
Ferstman, Ben, Los Angeles
Hitzelberger, Walter F., Los Angeles
Ishijima, Teruo Terry, San Francisco
Johnson, Morris A., San Francisco
McDermott, Fay H., Berkeley
Peterson, Ivan W., Los Angeles
Samuelson, John W., San Francisco
Slanker, Richard C., Los Angeles
Waring, Albert, Jr., Richmond

COLORADO

Nielsen, Walter G., Denver

DISTRICT OF COLUMBIA

Ginsburg, Ben H., Washington

FLORIDA

Rosenbaum, Helen Pupko, Miami Beach

IDAHO

King, William J., Twin Falls

ILLINOIS

Barnett, Edward R., Wood River
Fricek, Vlasta, Chicago
Jung, Lorraine Anne, Chicago
Koren, Joseph A., Berwyn
Kozlicka, Frank R., Chicago
Schwartz, Henry, Chicago
Szymkowski, Paul W., Chicago
Thomure, Francis A., Olney

INDIANA

Krueger, Frank, Fort Wayne
Kuhn, Thomas M., Indianapolis
Ross, Lawrence E., Bluffton

IOWA

Gayer, Robert N., Des Moines
Jay, George S., Shenandoah
Keasling, Hugh H., Keokuk
Keasling, Stanley W., Keokuk
Keleher, Thomas J., Council Bluffs
Marschall, John Clinton, Hampton
Myers, Walter D., Oakland
Ressler, John J., Storm Lake
Ross, James H., Council Bluffs
Turner, Ernest C., Grinnell
Vetterick, Harry F., Creston
Ward, Paul J., Ottumwa

KANSAS

Gaskill, Robert, Jr., Kansas City
Young, Harold F., Wichita

KENTUCKY

Humphrey, Herman A., Newport
Nutter, Frank L., Outwood
Voige, John H., Jr., Fort Thomas

MARYLAND

Apitz, Fred W., Baltimore
Forsyth, James H., Silver Spring
Gissel, Elmer A., Fort Howard
Henderson, Marvin W., Baltimore
Kerr, Charles Raymond, Easton
Lindenbaum, Morris, Reisterstown
Singer, Harold B., Baltimore

MASSACHUSETTS

Batsilas, James, Somerville
Thurston, Henry H., Wollaston

MICHIGAN

Johanning, Earl W., Dearborn
McCormick, James Harry, Battle Creek
Wegemer, Norbert R., Petoskey
Wheeler, Walter S., Detroit

MINNESOTA

Betts, Loel H., St. Paul
Beugen, Sam A., Minneapolis
Kruckeberg, Henry C., Minneapolis
Muesing, William C., New Ulm
Potter, Doyle L., Wheaton
Rudeen, Carl John, St. Paul
Rutter, Albert V., Duluth
Schaffer, Leo L., Winsted

MISSOURI

Hiner, William L., St. Louis
Nehring, Oscar S., St. Louis
Payne, Ewell J., Excelsior Springs
Schlinkmann, Paul Ernst, St. Louis
Sister Ambrose Devine, St. Joseph
Smith, Lawrence J., St. Louis
Stern, Herman M., St. Louis
Toalson, Ernest B., St. Louis

MONTANA

Hansen, Hilmer N., Helena
Withycombe, H., Eureka

NEBRASKA

Ban, Sam, Omaha
Buchanan, L. J., Hartington
Clayton, William G., Grand Island
Connor, Patrick J., Omaha
Holst, Karl V., Omaha
Morris, Floyd H., Arapahoe
Nicholas, Floyd, Grand Island
Nolan, William J., Omaha
Shainholtz, Wilbur E., Omaha
Sittler, Henry, Deshler
Sobeslavsky, Louis, Omaha
Thompson, Guy L., West Point
Zastera, B. R., Syracuse

NEW JERSEY

Aberbach, Louis, Belleville
Alario, Charles I., Arlington
Alven, Adolph R., Jersey City
Andreini, Albert J., West New York
Applebaum, Emanuel K., Clifton
Aronoff, Morris, Hoboken
Baumgarten, Benj., Jersey City
Bell, Philip, Passaic
Bergman, Abe, Bayonne
Burroughs, Edward A., Metuchen
Cermele, Michael J., Westfield
Charles, Monroe M., Plainfield
Cherny, Morris R., E. Orange
Cooper, Jack, Summit
Copello, Vincent, Little Ferry
Dakelman, Louis, Highland Park
D'Allegro, Justin, Newark
DeGiovanni, George Henry, Newark
Del Pomo, Arthur, Newark
De Martini, Vincent, Ridgefield Park
Dittmar, Richard O., West New York
Dmytriw, Nicholas, Avenel
Ebstyne, Harold D., Allendale
Edlin, Max, Kearny
Ehrhardt, John B., Madison
Esehak, Thomas J., Lyndhurst
Eten, Frank X., Westwood
Fialk, Samuel L., Jersey City
Friedman, Henry L., Newark
Fullaway, Edward S., East Orange
Fury, Ethel G., Spring Lake
Gaidemak, Samuel W., Newark
Gentelle, Albert, Union City
Giordano, Edward N., Newark
Goldin, Jerome L., West Englewood
Greenwood, Benjamin B. H., Denville
Hait, Harry H., Irvington
Halliday, Allen J., Oakland
Hotkin, Herman, East Orange
Kaye, Louis H., Newark
Kemper, Abraham, Newark
Kedersha, James J., Rutherford
Kirstein, Albert F., Jr., Rahway
Kravet, Samuel J., Newark
Kuskin, Irving I., Asbury Park
Lautenberg, William, Paterson
Lallone, Leopold, Newark
Legg, Edward J., Totowa Borough
Lenrow, Walter A., Dumont
Levine, Abraham, Palisades Park

Lichtenstein, Elliott A., Springfield
Lorber, Emanuel, Montclair
Lubinsky, S. H., Paterson
Maggio, George L., Newark
Mascia, Vincent L., Newark
McAdams, Harold, Clinton
McEvoy, Leo M., Newark
Olster, William, Passaic
Pfeiffer, Ernst W., Teaneck
Pinto, Michael P., Jersey City
Plotkin, Hyman, Plainfield
Robitsek, Anthony, New Brunswick
Romano, Peter, Jersey City
Russo, Carlo, Fairview
Salanitro, Alfred A., Bloomfield
Salzberg, Emanuel, Newark
Schneider, William M., Newark
Seigle, Benjamin, Newark
Silverman, Sidney A., Bloomfield
Smart, James L., Jr., Paterson
Spevack, Samuel W., Plainfield
Stec, A. John, Bayonne
Susser, Harry H., Teaneck
Talias, Michael D., Newark
Teichholz, Bernard, Hackensack
Tempel, George F., Irvington
Terry, Julius, Verona
Thorne, Edward A., Princeton
Vallario, Michael, Paterson
Venino, Frank, Jr., Maplewood
Vernon, Charles E., Newark
Virgona, John J., North Bergen
Werner, Charles, Newark
Yanuzzi, Adolph, Newark

NEW YORK

Bell, Jacob, New York
Chen, James L., Yonkers
Denegar, Harold Russell, Germantown
Garfinkel, Frank, New York
Goldberg, Samuel, Brooklyn
Grosso, Anna, Brooklyn
Hagemar, Betty J., Albany
Kaminkowitz, Louis, New York
Kravetz, D. N., Brooklyn
Margolinsky, Simon, Bronx
Marshall, Lillian, New York
Silverman, Robert D., Ogdensburg
Weiss, Nathan A., Newark
Winton, Ira H., New York

NORTH CAROLINA

Cornwell, G. T., Morganton
Dempster, Wallace G., Langdon
Irgens, James T., Williston
Klein, John C., Richardton
Wecker, Elmore, Dickinson

OHIO

Cullinan, Ralph, Youngstown
Ernst, Gordon, Toledo
Greene, Spotswood McKinley, Cincinnati
Hurless, Maxine, Dayton
Johnston, Richard W., Cincinnati
Kohlmeier, George E., Toledo
Myers, Earl C., Rossford
Newbold, Edward D., Toledo
Schultz, Lois I., Youngstown
Shapiro, Herman, Dayton

OKLAHOMA

Masterson, Conrad J., Oklahoma City
Tucker, Robert L., Norman
West, George L., Oklahoma City

OREGON

Rice, Bethel B., Portland

PENNSYLVANIA

David, Herbert J., Chester
Deardorff, Dwight L., Pittsburgh
Dunay, John G., Rankin
Evans, Brinley O., Pittsburgh
Finney, John J., Philadelphia
Greco, James Louis, N. Braddock
Grochowski, Joseph J., Mayview
Irvin, S. W., Philipsburg
Klimitas, Edward, Philadelphia
Owens, John R., Pittsburgh
Parker, S. Leo, Philadelphia
Shafer, A. J. F., Beaver
Shipley, Oran G., Pittsburgh
Statler, Robert A., Pittsburgh
Tighe, Edward W., Lancaster

RHODE ISLAND

McCormick, John F., Providence

SOUTH CAROLINA

Walker, John H., Greer

SOUTH DAKOTA

Bittner, A. O., Aberdeen
Carroll, Laura M., Aberdeen
Crissman, Herbert S., Ipswich
Bernhart, Petter K., Sioux Falls
Kreiser, F. A., Sioux Falls
Mehl, Ruth C., Maryville
Moe, Carl A., Huron

TEXAS

Collette, Allan, Houston
Edwards, Stephen B., Dallas
Hall, Robert E., Dallas
Hogan, John D. A., Houston

UTAH

Bignall, Bliss O., Heber

VIRGINIA

McFall, Robert Haskins, Danville
Willey, E. E., Richmond

WASHINGTON

Carlson, H. W., Dishman
Roy, Donna M., Richland

WISCONSIN

Foreman, E. Leon, Milwaukee
Janke, Paul C., Milwaukee
Jenson, Earl M., Milwaukee
Johnson, Kermit Wallace, Elroy
Kreuser, Louis H., Milwaukee
Mundstock, Harvey, Milwaukee
Nelson, George W., LaCrosse
Neumann, Edmund C., Milwaukee
Prasad, Sankatha, Madison
Schlonsky, Ben, Milwaukee
Sister M. Emerentia Reising, LaCrosse
Stamus, D. Lorraine, Mrs., Superior
Tobleske, Morris R., Milwaukee
Wenzel, Duane G., Madison
Woelffer, Royal W., Jr., Monticello

J. L. HAYMAN RECEIVES BEAL HONOR AWARD

J. LESTER HAYMAN, dean of the University of West Virginia College of Pharmacy, secretary of the West Virginia Pharmaceutical Association and a life member of A. PH. A., has received the first James H. Beal Honor Award. Dean Hayman is shown at the 1947 state meeting (on right in photo) receiving the bronze plaque from Dr. George D. Beal, son of the late James H. Beal and chairman of the Council of the AMERICAN PHARMACEUTICAL ASSOCIATION.

Dean Hayman was selected for the award by mail ballot as the pharmacist contributing most to furthering the practice of pharmacy in West Virginia.

This biennial award just established by the state association commemorates a pharmacist who served the A. PH. A. in many capacities, notably as general secretary, president and first editor of the original JOURNAL. Dr. James H. Beal was also prominent in education, the development of pharmaceutical laws, and was chairman of the U. S. P. Board of Trustees for thirty years.

In addition to receiving the Beal Award for his many contributions to West Virginia pharmacy, Dean Hayman was presented with a gold wristwatch as additional recognition of his services to the state association.